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Agricultural Outlook Forum '96

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GRAINS AND OILSEEDS OUTLOOK

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Opening Remarks

Good morning. I would like to begin by thanking all those who have made contributions to prepare these baseline projections and make this forum possible. Presenting USDA's domestic outlook for grains and oilseeds this year is particularly challenging. At the writing of this presentation, the structure of farm programs for the 1996 field crops and beyond is still very uncertain. For over a decade, commodity program structure has been a key element in shaping prospects for commodities. For the longer term prospects, USDA analysts assumed a continuation of commodity program provisions similar to current law, that is, programs which applied to the 1993 through 1995 crops of wheat, feed grains, and oilseeds. New farm program provisions being debated in Congress will undoubtedly continue its guiding influence on the future of U.S. production. However, the purpose of this forum is not to debate domestic policy, but to frame the environment under which these issues are debated.

In spite of the uncertainty about U.S. domestic policy, for the longer term, assumptions concerning the level of demand can provide decision-makers with useful insights about the prospects for domestic crop producers. Future prospects of demand for field crops are likely to have a major influence on the implementation of whatever domestic farm program that is ultimately passed by Congress.

I will briefly update the 1995/96 wheat, corn and soybean projections and give our assessment of the 1996/97 situation. Next, I will discuss three important policy and working assumptions: (1) the Conservation Reserve Program (CRP) assumptions; (2) ethanol assumptions; and (3) corn and soybean trend yield assumptions. These assumptions are important to the baseline projections because of the considerable impact their outcome has on the level of resources available for production and/or the level of demand during the longer-term period. I will conclude with a brief overview of the long-term outlook for grains and oilseeds.

Updating 1995/96 and 1996/97 Forecasts

The 1995/96 forecasts for wheat, feed grains, and oilseeds used in the baseline were from the January 16, 1996, issue of the World Agricultural Supply and Demand Estimates. Few changes were made to these estimates in the February report and most would not likely change our longer term analysis significantly. Thus, the updating will be quite brief.

Wheat

The wheat 1995/96 supply and demand balance sheet has been revised modestly since the baseline was prepared in January. Imports of wheat were reduced 15 million bushels to reflect the pace of imports-to-date and prospects for further imports. On the demand side, exports were revised upward 50 million bushels and feed and residual use was reduced 25 million bushels. The forecast of exports increased due to the unexpectedly large purchases by China and continued strong pace of sales to other countries. Overall, ending stocks are projected 40 million bushels lower than in the January baseline, at 346 million bushels. This places stocks only slightly above the 1973/74 low. The forecast range of season-average farm prices was narrowed to \$4.40 to \$4.50 per bushel, about \$1.00 above 1994/95. While none of these changes were considered to have a significant impact on the longer term analysis, supplies for 1996/97 are slightly lower.

Record high prices for wheat combined with good planting conditions in Montana, South Dakota, and the Midwest soft red winter wheat States led to the highest winter wheat seedings since 1990. Planted area of 52.0 million acres is up 7 percent from 1995. Spring wheat (including durum) area is expected to increase only slightly to 21 million acres compared with 20.5 million in 1995. Although wheat prices remain attractive this year, competing feed grain and oilseed prices are strong as well, limiting potential spring wheat area expansion. Also, much of the increase in winter wheat plantings in Montana was likely on land that had been planted to spring wheat in 1995. Poor weather conditions in the fall of 1994 kept winter wheat plantings down in Montana.

Higher harvested area and an assumed yield of 38 bushels per acre will result in wheat production of 2,450 million bushels for 1996, about 12 percent above 1995. However, tight beginning stocks will result in 1996 supplies of around 2.9 billion bushels, an increase of just under 5 percent from this year.

Total wheat use is projected to remain relatively flat in 1996/97, continuing the pattern of the last several years. Domestic food use continues to trend upward, while feed and residual use will rise because of strong feed grain prices this summer. Exports are projected to drop from this year as the U.S. will face increased competition from expanding production in most of the competing exporting countries. Ending stocks could be up around 80 million bushels from this year.

With a less tight U.S. and world supply/use balance, the U.S. farm price of wheat could drop 50 to 60 cents from this year. However prices will be 70 to 80 cents above the average price for the 1990-94 period.

Table 1. Wheat Supply, Demand, and Prices: Comparison of 1995/96 January 1996 vs. February 1996 Forecasts and 1996/97 Projections.

Item	Units	1995/96 1/			1996/97
		Jan. 1996	Feb. 1996	Change	
Planted	mil. ac.	69.2	69.2	0.0	73.0
Harvested	mil. ac.	61.0	61.0	0.0	64.5
Yield	bu./ac.	35.8	35.8	0.0	38.0
Production	mil. bu.	2,186	2,186	0	2,450
Supply 2/	mil. bu.	2,777	2762	-15	2,896
Feed & Residual	mil. bu.	200	175	-25	325
Food, Seed, & Industrial	mil. bu.	966	966	0	970
Exports	mil. bu.	1,225	1,275	+50	1,175
Total Use	mil. bu.	2,391	2,416	+25	2,470
Ending Stocks	mil. bu.	386	346	-40	426
Farm Price 2/	\$/bu.	4.40	4.45	+0.05	3.90

1/ Source: World Agricultural Supply and Demand Estimates, January 16, 1996 and February 9, 1996.

2/ Mid-point of average farm price forecast.

3/ Includes imports.

Corn

The 1995/96 corn supply and demand balance sheet has also changed since the baseline was prepared in January. Reduced Argentine crop prospects and larger forecast imports by Thailand and the Philippines resulted in an increase of 50 million bushels in U.S. export prospects. Exports are expected to slightly surpass last year's 2.177 billion bushels and be the largest exports since 1989/90. Because estimates of domestic demand were unchanged, ending stocks were reduced to 457 million bushels, representing just 5.4 percent of projected use. This would be the lowest stocks for the September-August marketing year which are estimated back to 1975/76. Projected average farm prices remained unchanged at \$3.00 to \$3.40 per bushel.

Plantings of corn this spring will be influenced by the strong prices currently being received for the 1995 crop as well as other factors. The ratio of projected average 1995/96 farm prices of soybeans relative to corn of just under 2.2-to-1 suggests strong incentives to plant corn. Typically, a ratio of around 2.5-to-1 would be considered a neutral relationship. Other factors will also influence corn plantings this spring, including rotational considerations, weather during the soil preparation and planting season, whole-farm conservation plans, and the option for early-out of expiring 1996-CRP contracts. The forecast of corn plantings is expected to be 80.8 million acres, up 13 percent from 1995 when a 7.5 percent acreage reduction program (ARP) and an extremely wet spring curtailed plantings.

Using a trend yield of 127 bushels per acre and harvested area of 74.2 million acres, 1996 corn production would be about 9.4 billion bushels, up over 25 percent from last year's reduced crop. However, the larger crop will be partially offset by the reduced carryin. Total 1996/97 corn supplies would total around 9.9 billion bushels, up about 1 billion from the previous year.

Table 2. Corn Supply, Demand, and Prices: Comparison of 1995/96 January 1996 vs. February 1996 Forecasts and 1996/97 Projections.

Item	Units	1995/96 <u>1/</u>			1996/97
		Jan. 1996	Feb. 1996	Change	
Planted	mil. ac.	71.2	71.2	0.0	80.8
Harvested	mil. ac.	65.0	65.0	0.0	74.2
Yield	bu./ac.	113.5	113.5	0.0	127.0
Production	mil. bu.	7,374	7,374	0	9,425
Supply <u>2/</u>	mil. bu.	8,942	8,942	0	9,892
Feed & Residual	mil. bu.	4,600	4,600	0	5,325
Food, Seed, & Industrial	mil. bu.	1,685	1,685	0	1,750
Exports	mil. bu.	2,150	2,200	+50	2,100
Total Use	mil. bu.	8,435	8,485	+50	9,175
Ending Stocks	mil. bu.	507	457	-50	717
Farm Price <u>3/</u>	\$/bu.	3.20	3.20	+0.00	2.75

1/ Source: World Agricultural Supply and Demand Estimates, January 16, 1996 and February 9, 1996.

2/ Includes imports.

3/ Mid-point of average farm price forecast.

Demand prospects are expected to remain quite robust during 1996/97. Exports are expected to exceed 2 billion bushels for the third consecutive year. Larger corn supplies and large livestock inventories will boost feed and residual use to about 5.3 billion bushels. Food, seed, and industrial use is also expected to increase to near 1.8 billion bushels. Total use is projected to reach nearly 9.2 billion bushels in 1996/97, about 250 million bushels less than production.

With projected use of 9.2 billion bushels, ending stocks for 1996/97 are projected to increase roughly 250 million bushels from 1995/96 carryout. The stocks-to-use ratio would remain below 10 percent for 1996/97, keeping prices relatively high. However the larger corn crop and larger supplies of other grains will likely result in corn prices averaging about \$0.50 per bushel below expected 1995/96 prices. Corn prices have exceeded \$2.70 per bushel in only four previous years--1974, 1980, 1983 and 1995--exceeding \$3.00 per bushel in each year.

Soybeans

The 1995/96 supply and demand balance sheet for the U.S. soybean sector is similar to the USDA January baseline with changes limited to a downward adjustment in soybean crush and an offsetting upward revision of exports. The pace of soybean exports in 1995/96 continues to be better than expected, with strong Asian demand accounting for much of the gain.

The lackluster performance of U.S. soybean product exports--soybean meal and oil--however, led to a downward adjustment in their respective export projections from the January baseline level. Lagging soybean oil exports and a surge in reported stock levels led to a downward revision in the soybean oil price to the lowest level in more than 2 years. Slipping oil prices and lower soybean meal exports prompted the season average soybean price to be reduced by 5 cents per bushel to \$6.50-\$7.50.

A return to more normal planting conditions in spring of 1996 compared with the 1995 planting season and strong corn prices relative to soybeans suggest that planting of soybeans could drop to about 61 million acres in 1996/97. While soybean plantings are likely to decline significantly in the Corn Belt region, plantings are likely to increase marginally in the Southeast and Delta regions as \$7-per-bushel soybeans stimulate an expansion of double cropped soybeans. In addition, soybean plantings may increase on traditional cotton land due to attractive soybean prices and higher variable cost of production for cotton to control increasing pest problems.

A return to trend yields will net soybean production of around 2.2 billion bushels. However, the lowest carry-in stocks since 1988/89 will constrain supplies to a three year low. Tight supplies are likely to weaken both domestic demand for crush and exports to 1,360 and 765 million bushels respectively.

While U.S. soybean exports for 1996/97 are presently pegged at lower than this year's levels, export demand for U.S. beans is expected to remain relatively strong, over 100 million bushels above the average exports during the 1989/90-93/94 period. The South American soybean crop, presently in the middle of the growing season, continues to be beset by variable weather conditions and lower plantings.

More robust soybean and meal prices in 1996/97 compared to corn prices, will constrain domestic meal consumption and soybean crush. Crush is forecast at 1.36 billion bushels, a three year low and down 20 million from 1995/96. Additionally, constrained growth in world soybean meal consumption due to lower feed grain prices is expected to limit U.S. soybean meal exports to 5.55 million short tons, down from the 5.8 million estimate for 1995/96.

Table 3. Soybeans Supply, Demand, and Prices: Comparison of 1995/96 January 1996 vs. February 1996 Forecasts and 1996/97 Projections.

Item	Units	1995/96 1/			1996/97
		Jan. 1996	Feb. 1996	Change	
Planted	mil. ac.	62.6	62.6	0.0	61.0
Harvested	mil. ac.	61.6	61.6	0.0	60.0
Yield	bu./ac.	34.9	34.9	0.0	37.0
Production	mil. bu.	2,152	2,152	0	2,220
Crush	mil. bu.	1,390	1,380	-10	1,360
Seed & Residual	mil. bu.	112	112	0	115
Exports	mil. bu.	800	810	+10	765
Total Use	mil. bu.	2,302	2,302	0	2,240
Ending Stocks	mil. bu.	190	190	0	175
Farm Price 2/	\$/bu.	7.05	7.00	-.05	6.95

1/ Source: World Agricultural Supply and Demand Estimates, January 16, 1996 and February 9, 1996.

2/ Mid-point of average farm price forecast.

Despite a projected slow-down in total soybean use as supplies tighten, stocks are forecast to slip to 170 million bushels, supporting soybean prices in a range similar to this year's \$6.50 per bushel to \$7.50 per bushel. Meal prices will be pressured upward to a range of \$210-\$240 per short ton. Meanwhile, global vegetable oil markets are expected to remain tight as availabilities of high oil-yielding crops wane. This tightness will prompt a slight

expansion in U.S. soybean oil exports to 1.95 billion pounds. A strong soybean oil carryover from 1995/96 will, however, propel U.S. supplies to a record high, dampening expectations of soybean oil prices to a range of 22-25 cents per pound.

Key Baseline Assumptions

CRP

On January 25, 1996, USDA announced an 'early-out' option for producers with acreage enrolled in the Conservation Reserve Program (CRP) whose contracts are scheduled to expire September 30, 1996. Of the 36 million acres currently in the CRP, about 15 million acres are under contracts which expire on September 30, 1996. USDA has also indicated to producers that terms and conditions for contract extensions will be announced before they are required to decide whether to participate in the early-out option. Currently the Secretary does not have authority to enroll new lands to replace early-out acreage until 1997. However, at that time or when new farm legislation provides for new enrollment authority, USDA plans to replace the early-released acreage with enrollments of environmentally sensitive lands.

The impact of the early-out option for CRP contracts expiring in September 1996 on 1996 crop plantings is expected to be relatively limited. Not knowing whether a producer may be able to extend current CRP contracts and uncertainty about 1996 commodity programs is expected to limit participation. USDA currently has authority to extend contracts upon expiration, at terms agreeable to the Secretary and the contract holder.

Of the 15 million acres of CRP contracts expiring in 1996, about 8 million acres are eligible for the early out option based on soil erodibility and special locational and conservation practice criteria. The baseline analysis suggests that contracts representing only about 1 million of these acres will choose the early-out option. Of this 1 million acres, approximately 600,000 acres are corn, wheat, and soybean acres.

The baseline analysis assumes that during calendar year 1997 USDA will enroll an additional 1.6 million acres of environmentally sensitive land. The baseline also assumes USDA uses its authority to offer contract extensions as they expire. By the 2000/01 crop year, total land in the CRP is projected to decline to about 28 million acres, and to about 27.5 million for 2003/04 to 2005/06. Thus, by 2003/04, nearly 9 million acres of additional cropland will be available to plant crops to meet expanding domestic and world grains and oilseed demand.

Corn Yields

Another big factor in the baseline projections for corn is the trend yield assumption, particularly because of the large yield variations experienced in recent history. Regressing U.S. corn yields over time for the period 1960 to 1995 results in a simple linear trend yield

for corn of 126.1 bushels per acre for 1996. Yield models with weather variables give a mean expected corn yield of about 127.5 bushels.

Another method for calculating trend yields uses ear weights and plant count statistics. USDA publishes the number of harvested ears per acre for 10 objective yield states. Ear weights can be calculated by taking the yield in bushels per acre, converting it to pounds per acre, then dividing by the ear count to get the pounds per ear. An examination of this data for the 1979-95 period indicates that most of the trend increase in corn yields is due to more harvested ears per acre rather than ear weights. Using a trend ears per acre and an average ear weight (1979-95, excluding 1983, 1988, and 1993) gives a yield of 127.2 bushels, in line with our trend yield forecast.

Soybean Yields

The soybean production outlook for 1996/97 and for the projection period also depends importantly on yield assumptions. Indications that the last decade has witnessed a shift in soybean yield potential is revealed by USDA's National Agricultural Statistics Service (NASS) which points to strong increases in pod count and plant populations per acre.

However, strong yield variability over the past 5 years has masked the true extent of the shift in yield potential. Yields in 1994, at 41.9 bushels per acre, were nearly 2 standard errors above the 1970-1995 U.S. trend yield, while yields in 1992 were also abnormally high for the U.S. Variable weather conditions in 1995, however, pushed soybean yields lower than trend yields, but only by less than one standard error.

Based on regional analyses, which indicate that over the past five years higher-than-normal yields have been evidenced in the mid-South and parts of the Eastern Corn Belt, USDA baseline projections for yields exceed the simple 1970-95 linear long term trend.

Ethanol

A significant difference in this year's baseline analysis of domestic corn demand is due to the lower projected use of corn for fuel ethanol production. During 1995, the courts failed to uphold EPA's final rule published on June 30, 1994, requiring that 15 percent of the oxygenate requirement under the Clean Air Act must be satisfied with fuel from renewable sources (primarily ethanol) during calendar year 1995 and 30 percent beginning in calendar year 1996. Under the Clean Air Act, selected metropolitan (attainment) areas must use oxygen-enhanced fuels to meet clean air standards. In past baseline analyses, ethanol demand was expected to grow dramatically reaching about 1,700 million gallons (equivalent to 680 million bushel of corn) by 2000/01 and 2,100 million gallons (840 million bushels of corn) by 2005/06.

Because the courts have not upheld the renewable oxygenate requirement, it is expected that ethanol demand will plateau at about 1.6 billion gallons (650 million bushels of corn) by 2000/01. This is only slightly higher than current production capacity estimates for the industry of about 1.4-1.5 billion gallons. Thus, little additional ethanol production capacity is expected over the next ten years.

Other components of the food, seed, and industrial (FSI) sector are expected to continue to grow in line with past analyses, averaging between 2 to 3 percent per year. Total FSI demand is expected to reach 2.1 billion bushels by 2005.

The Long-Term Baseline Picture at a Glance

Bob Riemenschneider has given you the international operating environment for the U.S. grains and oilseeds sectors. Rising global incomes are generating strengthening demand for U.S. grains and oilseeds, resulting in relatively strong growth for U.S. exports of wheat and feed grains. Annual growth in domestic use for wheat, corn, and soybeans averages about 1 percent, 2 percent and 1 percent, respectively over the 1996 - 2005 period. Export growth rates are higher for wheat and feed grains at about 2.5 percent per year. Export growth for soybeans matches its domestic growth rate. Overall, global demand is rising faster than production leading to tightening supply/demand balances and boosting prices. This pulls land back into production. Wheat and feed grain ARP levels are set at zero percent. Acreage idled under the 0,85-92 provisions is the only acreage idled under the annual programs. While the CRP is continued, relatively strong returns draw less environmentally sensitive land back into production. The acreage remaining in the CRP levels off at about 27.5 million acres during the last half of the baseline period. By marketing year 2005/06, average farm prices per bushel reach \$4.15 for wheat, \$2.80 for corn, and \$7.05 for soybeans.

THE CHANGING GLOBAL MARKETPLACE

**Stephen P. Dees
Executive Vice President, Business Development & International Marketing
Farmland Industries, Inc.**

Thank you Tim, it is a pleasure to be included on today's panel. I am especially pleased and honored to be included with Dmitry and Gregory in a discussion of *The Changing Global Marketplace*. You and the conference organizers deserve a special thank you for bringing both of these gentlemen, representing important and growing markets for our agricultural production, to today's sessions.

The farmers and ranchers that own and hold membership in the Farmland Cooperative System are excited about the potential for serving consumers around the globe. The changes occurring in today's markets are a major reason for our optimism. I personally look forward to our discussions today and the balance of the USDA outlook forum as an excellent opportunity to gain information and insight on many issues vital to the success of US producers and agribusiness.

I would like to start my discussion with a few observations about the trends that are driving change in many international agricultural markets. After reviewing these trends, I'll focus on the changing way we view consumers of the products marketed by Farmland. Before I close, I plan to relate some of our marketing experiences in Russia, Japan and particularly in Mexico.

Looking at markets around the world one cannot help but be impressed by the results of economic and trade reforms. Consumers are enjoying new purchasing powers. One of the first places additional income is expended is for food products. Buyers with the capacity to pay for goods are demanding better diets and higher quality. At the same time the combination of production constraints and trade liberalization is enabling competitive producers to expand exports.

Leading the way in transforming today's agricultural markets are three often identified trends: privatization, trade liberalization, and overall market globalization.

The breakdown of several state managed economies and a conscious effort by others to reduce central control of trade and business operations is opening trade opportunities for many of us. Privatization of former state enterprises and de-monopolization of factories, farms, transportation, telecommunications, and consumer services means increased complexity in most marketing activities. More importantly the efficiencies gained and the markets opened by this trend are resulting in relationships with new commercial partners.

Those new partners are serving a consumer market that responds more to economic signals than to the political decisions that guided consumption in the past. The new level of economic decision making that is prevalent in today's markets parallel those economic forces that guide the production of food. In the end, producers, traders, and the consumers all benefit from increased economic efficiencies in the market.

The reforms to trade policies negotiated under the Uruguay Round Agricultural Agreement are already having impact on global trade patterns. The reduction in export subsidies, measures to increase market access, and control of trade-distorting domestic production subsidies, are real gains for trade of many agricultural products. Regional agreements like NAFTA are providing similar opportunities. Trade liberalization is one trend that needs continuous reinforcement from the political systems that guide the reforms. I am cautiously optimistic that the process of negotiation, reform, and implementation will result in fully liberalized agricultural trade.

Globalization of markets is becoming increasingly possible as new technologies are implemented. Information flow has improved so dramatically that buyers and sellers around the globe now have almost instantaneous access to market information and to each other. Importantly, access is becoming increasingly cost effective and greatly improved in quality. As improved technologies permit us to overcome the economic, political, and social barriers to trade, the ability to compete on the basis of price, quality, and performance becomes more important.

These three trends in particular support trade in an environment of more people, with more money to spend. There are more buyers and sellers of agricultural products. Those players will participate in an expanding market with more products and more technologies involved in producing, processing, and transporting products. Most importantly all these influences result in changes that translate to MORE CHOICE for all players and especially for the consumer.

As an exporter of agricultural products, it is fundamental that we deal with the consumers' developing capacity to choose. Consumers want - and we in agriculture must deliver - a reliable supply of a high-quality product that is safe, nutritious, affordable, healthful, uniform appearance and quality. In addition, consumers have increased their expectations that food products will be produced in an environmentally sound manner.

These conditions require that we, as agricultural producers, become more cost efficient, more consistent, more quality-driven and more sensitive to environmentally sound practices. As a representative of the Nations' largest farmer-owned food business, I am confident in our intent to meet these challenges.

We know that agricultural producers can no longer rely on a strategy of simply maximizing yields. Today's food systems must optimize what goes in and what comes out of our agricultural processes so that we, as producers, can prosper, our natural resources can be renewed and world consumers can experience what the US consumer has benefited from for years – an abundant, safe and affordable food supply.

At Farmland, we have learned much from our customers and partners. Dmitry explained his operations in the Former Soviet Union. We, at Farmland, are extremely pleased to call Dmitry and SoyuzKontact our partners and friends. Their capacity and understanding of the choices and capacity of that market are unparalleled.

We have also come to recognize, again through experience gained with our trading partners, important changes occurring in the Asian-Pacific Rim economies and trading environment. In these markets, consumer incomes continue to grow substantially and many market barriers are beginning to be lowered. As a result, consumers in the Asian Pacific represent better than consumers of any other particular region the phenomenon of new purchasing power and demand for better diets.

The Farmland System exports corn, milo, wheat, soybeans and feedstuffs. We also export value-added goods, including meat products. Our experience is that sales of consumer-oriented products (value-added) holds great opportunity for the US producer. For instance, in 1995, over 80% of the fresh pork processed at our Crete, Nebraska plant was exported to the Asia-Pacific. This plant is an example of how we are providing the consumer with the product of choice. Most of the plant equipment and operations are specifically designed to meet the expectations of our export customer. In a similar fashion, our beef company joint-venture, National Beef, is involved in a major effort to update and re-engineer production capacity to meet the very specific preferences of our Japanese customers.

Nevertheless we recognize a large and growing market in the Asian-Pacific for bulk grain. Growing consumer demand for meat and bread in large population centers like China and Indonesia represent what may be our best opportunity for bulk grain export sales growth.

Mexico Experience

Another very important market for the Farmland System is Mexico and Latin America. Farmland's first office outside the US was in Mexico. I opened that office in 1993 and headed it up for two years. It was a very interesting two years. We saw it go from one of the fastest growing, most exciting emerging markets in the world to an economy in crisis. Unquestionably, Mexico is struggling today. However, to its credit, Mexico has maintained its commitment to open trade and privatization, even though many Mexicans blame the changes for their problems. It looks like Mexico will stay the course and that the Government's austerity measures are working to turn the economy around.

But even with the disastrous economic situation we have seen in the last year and a quarter in Mexico, the importance of Mexico as a market for American agriculture and particularly for Midwestern American producers is clear. Despite the devaluation, the lack of purchasing power and all the other problems, Mexico has continued to be an extremely important market for American grain and American meat. The latest numbers available to us indicate that last year Mexican imports of U.S. wheat, feed grains and oil seeds amounted to over 8 million metric tons compared to 9,128,000,000 metric tons for 1994. Beef and pork exports to Mexico amounted to approximately 46,000 metric tons versus 110,425 metric tons the preceding year. As you can see, the market continues to be important. From Farmland's standpoint, our sales in all areas of product, including grain, red meat, and feed ingredients increased substantially in 1995, a year in which Mexico's economy was very likely at the lowest level we will ever see it.

We know from past experience what the Mexican consumers like. They like American products, they like American quality. We know the potential for that market is incredible and we are very committed to being there as that market comes back.

IMPLICATIONS OF THE POTENTIAL NEW FARM BILL FOR UPLAND COTTON

Carl G. Anderson, Edward G. Smith, and Allan W. Gray

Professor and Extension Economist-Cotton Marketing.

Distinguished Roy B. Davis Professor of Agricultural Cooperation and Extension Economist-

Marketing and Policy, and

Research Associate, respectively, Department of Agricultural Economics,

Texas A&M University

Policy issues confronting the U.S. cotton industry and fiber consumers are similar to those that have existed for years. The changing supply and demand forces in world markets, the protectionist policies of most countries where cotton is produced, and the vagaries of weather, insects and disease on world cotton production create considerable interactions between market forces and global policies. Safety nets on farm income resulting from policy provisions help stabilize earnings and reduce risk. As a result, capital and human resources used in growing and marketing cotton can make more orderly adjustments in or out of the cotton production infrastructure.

Significant political uncertainty regarding the new Farm Bill remained as of February 14, 1996 when this paper was prepared. The following alternatives appear most probable at this point:

- Congress passes and the President signs provisions similar to the farm sections of the Budget Reconciliation legislation the President vetoed. This agricultural reconciliation language appears to be the mark-up vehicle for the House of Representatives and the Senate and would include the transition payment concept popularly referred to as Freedom-To-Farm.
- Extend the provisions of the 1990 Farm Bill for one or two years. Upland cotton, as well as oilseeds, dairy, peanuts, sugar and honey already have this program in place. The extensions would only be necessary for wheat, feed grains, and rice.

Realistically neither of these alternatives will likely pass as written, and a compromise will define the specific provisions of the New Farm Bill (NFB). Since it appears that some version of the transition payment concept may emerge, this paper will focus primarily on analysis done by FAPRI/AFPC related to the provision of Agricultural Reconciliation Act (ARA). The analysis assumes the provisions are implemented in 1996 and extend through the 2002 crop.

Production Location and Market Share

The U.S. cotton industry has shown remarkable growth since the implementation of the marketing loan provisions from the 1985 Farm Bill in 1986. Where the use of cotton totaled roughly 12.0 million bales in the decade before 1985, usage has increased to the 18.0 million bale level by 1995. Most of the 6.0 million bale growth was in domestic mill use. However, the farm price averaged near 60.0 cents per pound during the decade before and after the 1985 cotton program. Because of improved yields, a 30 percent increase in acreage has produced enough cotton to meet the 50 percent increase in usage at essentially the same price.

Much of the expansion in cotton acreage has been in the Southeast states of Alabama, Georgia, North Carolina, South Carolina, Virginia, and Florida (Figure 1). In 1995, acreage in these states totaled 3,462,000 acres, compared with only 761,000 in 1986. The rapid growth in production has stimulated substantial investments and economic activity in the agribusiness community that provide production inputs, harvesting equipment, gins and warehouses. The Delta states of Arkansas, Louisiana, Mississippi, Missouri, and Tennessee expanded acreage by 2,268,000 acres to 4,876,000 during the last decade. Acreage in the Southwestern states of Texas and Oklahoma increased by 1,532,800 to 6,783,000. In the West, Arizona, California, and New Mexico acreage has been more stable, gaining less than 300,000 acres to 1,596,000.

The shift in cotton from West to East is clearly emphasized by changes in regional production shares since 1986. The Southeast now produces 22 percent of the crop, a sharp gain from 8 percent; the Delta's share is 34 percent, a small increase from 32 percent; the Southwest contributes 26 percent, down from 29 percent; and the West dropped from 31 percent to 18 percent share of production.

Therefore, the largest impact of the new farm program on cotton, whether positive or negative, will likely be felt in the Southeastern and Delta states. However, Texas farmers plant about 38 percent of the total U.S. cotton acreage while its production share is 26 percent. The smallest part of the industry is in the Western states. While cotton growers in the United States produced about 20 percent of the world's 89 million bale crop in 1995, American textile mills consumed only 13 percent of the 86 million bale disappearance.

New Farm Bill Provisions

Upland cotton provisions of the ARA are summarized in Table 1. The target price/deficiency income support program is replaced by fixed, annual transition payments. Upland cotton's share of the fixed payments equals 11.63 percent based on expected share of deficiency payments that would have been paid during 1996-2002 under an extension of the current program as projected by the Congressional Budget Office (CBO). Aggregate payments reach \$675 million in FY 1998 then decline to \$466 million by FY 2002.

Figure 1. United States: Cotton.

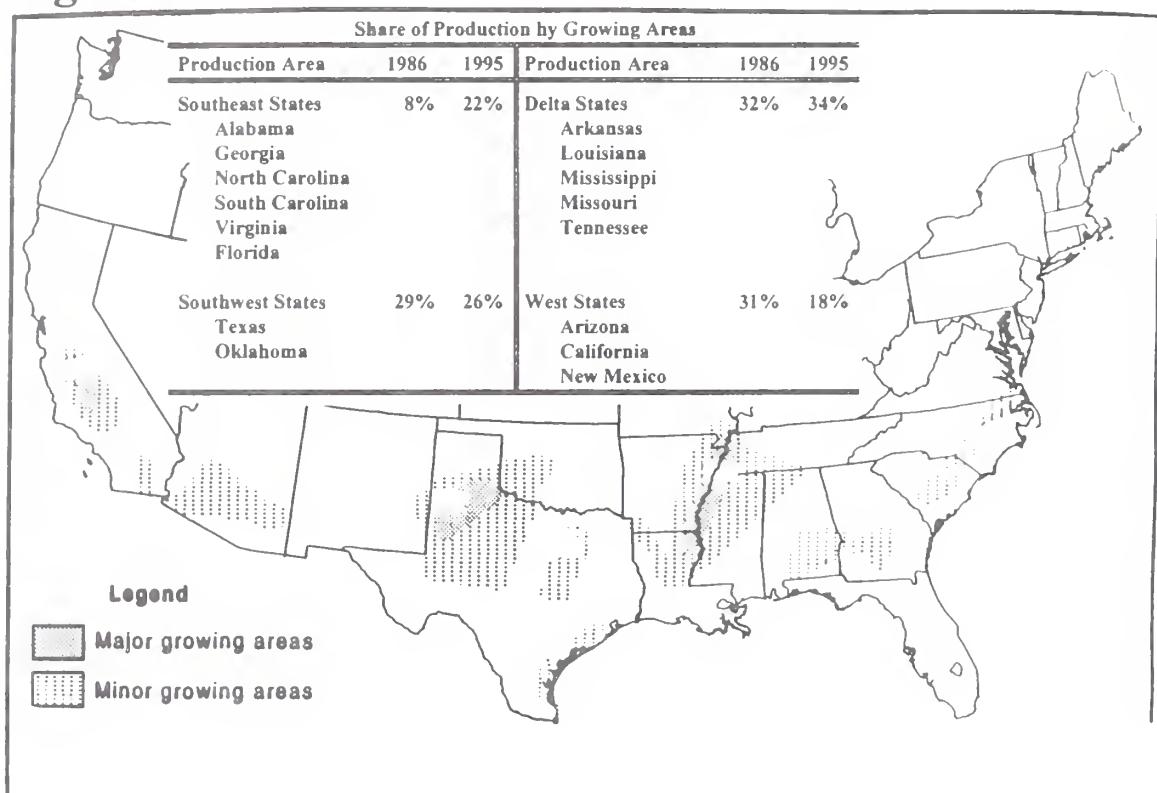


Table 1. Summary of the Upland Cotton Provisions for the 1990 Farm Bill and of the Agricultural Reconciliation Act (ARA).

Policy Tools	1990 Farm Bill	ARA
Target Price	Effectively Frozen at \$0.729/lb.	Eliminated
Decoupled Transition Payments	None	Seven year fixed annual payment contracts with declining aggregate expenditures as follows: 1996 - \$648 million 1997 - \$626 million 1998 - \$675 million 1999 - \$652 million 2000 - \$597 million 2001 - \$480 million 2002 - \$466 million
Individual Payment Quantity	85 percent of Base acres less acreage reduction requirement multiplied by farm program yield	85 percent of eligible base acreage (contract acres) multiplied by the 1995 farm program yield
Nonrecourse CCC Loan	Formula determined at not less than either the lower of 85% of 5 year olympic average or 90% of an adjusted Northern Europe Price Quotation or \$0.50/lb.	Same as 1990 Farm Bill with a maximum of \$0.5192/lb. The eight month nonrecourse loan extension is eliminated.
Marketing Loan	Based on World Market Price for Upland Cotton	Based on World Market Price for Upland Cotton
Flexibility	Limited flexibility related to 15% NFA - 10% OFA	Full flexibility on 15% of contract acreage; limited flexibility in planting vegetables and haying and grazing on 85% of contract acreage.
ARP Authority	Formula directed between 0 and 25 percent of base to achieve 29% stocks - to - use	Eliminated
CRP	36.4 million acres currently including 1.4 million acres of cotton base.	Enrollment limited to 36.4 million acres early exit is allowed.
0/50/85	50/85	Effectively 0/100
Payment Limits	\$50,000/ person deficiency \$75,000/ person marketing loan \$250,000/ person with 3 entity rule	\$40,000/ person transition \$75,000/ person marketing loan \$230,000/ person with 3 entity rule

Individual contract payments would be based on 85 percent of the eligible contract acreage multiplied by the 1995 farm program yield. To be eligible the farm must have established at least one crop base on the farm and to have participated in at least one applicable program over the 1991 through 1995 crop years. Conservation compliance regulations must be met to qualify for the fixed transition contracts.

The nonrecourse loan program is calculated as under current legislation with the exception that it is capped at \$0.5192/lb. The minimum loan floor of \$0.50/lb is retained. Extension of the nonrecourse loan beyond the original 10 month period, however, is eliminated. The marketing loan provisions are maintained as currently implemented.

The ARA significantly increases production flexibility. Eligible producers can plant any crop they choose on the 15 percent of contract acreage that is not subject to a transition payment. There are limitations on the 85 percent of contract acreage that is subject to a transition payment. Fruits and vegetables are not allowed on these acres. In addition, haying and grazing is not allowed during the five principal growing months on the payment acreage. Alfalfa plantings can exceed the 15 percent non-paid acreage, but transition payments will be reduced for plantings over 15 percent of the contract acreage.

Annual authority to require acreage reduction in order to be in compliance with the farm program is eliminated. In the current program the Secretary is instructed to utilize acreage reduction programs in order to maintain projected stocks-to-use targets of 29 percent.

Enrollment in the CRP program is capped at 36.4 million acres. Producers would be allowed to exit the program without penalty after giving a 60 day written notice. Through the first 12 sign-ups, approximately 1,434,000 acres of cotton base were idled in the CRP program. Approximately 84 percent of that base is in Texas.

The 50/85 program that allowed producers to plant as little as 50 percent of their payment acreage and receive deficiency payments on 85 of their payment acreage is eliminated. The flexibility provision of ARA effectively grant producers a 0/100 program since they would not be required to plant anything in order to receive their eligible transition payment.

Transition payments under all flexibility contracts are limited to \$40,000 per person. Marketing loan gains continue to be capped at \$75,000 per person. The three entity rule is maintained, thus total payments are capped at \$230,000 per person, down from the current \$250,000 limit.

National and Farm Level Impacts

National - FAPRI estimates, assuming normal yields, that cotton prices under ARA would fall from the mid-seventy cent per pound level currently being received for the 1995 crop to the lower-to-mid sixty cent level through the year 2000 before falling slightly under sixty cents by

2002. Couple declining market prices with a 15 percent increase in variable cost of production and per acre returns above variable cost falls by 30 percent. The decoupled transition payments will more than offset this decline in market returns on a dollar basis. However, from a cash flow standpoint if one compared market returns above variable cost plus transition payments in 1996 with comparable expected returns for the year 2002 the cash flow surplus would have declined by 19 percent.

The relative decline in returns above variable cost, whether measured with or without the decoupled transition payment results in a 15 percent reduction in planted cotton acreage from the 16.64 million acres planted in 1995. However, changes in yields, acreages and prices may reflect shifts in acreage that are different than those projected.

Farm Level - AFPC maintains data to simulate the impacts of farm policy on 72 representative crop and livestock farms nationally. Of these, 10 are dependent on cotton production for a majority of their income. Six of the ten cotton farms are located in Texas, two in the Mississippi Delta and two in the Southern San Joaquin Valley of California.

Six of the panel farms are the size considered to be representative of the majority of full-time commercial farming operations in the study area. In four of the regions, Texas Southern and Rolling Plains, Mississippi Delta and California Southern San Joaquin Valley, a second farm roughly two to three times larger than the moderate scale operation is monitored as an indication of economies of size.

All six Texas cotton farms are able to maintain real net worth over the study period. While these farm level results on average appear moderately optimistic for the Southwest region, there are some concerns. Increased production flexibility and relatively tight U.S. stocks will likely result in increased price volatility. If net cash farm income (NCFI) declines slightly, then most Texas farms experience a loss in real net worth. The large Texas Southern Plains operation could sustain a moderate NCFI decline before losing equity during the seven year period.

NCFI declines significantly on four of the representative Texas farms for most of the period as market prices decline and transition payments are reduced. The two Southern Plains farms start experiencing NCFI losses after the year 2000 while pretty much holding their own until then. The Southern Plains farms have improved their economic viability significantly over the last 2-3 years by placing a portion of their acreage under irrigation growing both cotton and peanuts. Since this is a growing trend in the Southern Plains region, a question for the future is will the water table remain sufficient or decline beyond usable levels?

The California and Mississippi operations lose real equity over the 1996-2002 study period, ranging from a small amount on the moderate California operation to over a third on the moderate Mississippi farm. A five percent improvement in NCFI relative to gross receipts, however, would allow the moderate California and large Mississippi operation to maintain equity, while roughly 10 percent would be needed on the large California and the moderate scale

Mississippi farm. As a rule of thumb, AFPC believes that if equity can be maintained with NCFI increases of 10 percent of total receipts, then the farm has a good chance of sustaining equity. This could easily be the case on the large California cotton farm where decoupling of production from payments could result in cost restructuring that was not achievable under the current payment limit and production relationships of the current program. Although the Mississippi operations will benefit from the decoupling of payments from production, the payment limits cause the moderate scale operation to be financial vulnerable.

As with the Texas farms, NCFI drops precipitously after the year 2000, a function of increasing cost, falling market prices and reduced transition payments.

Implications for Upland Cotton

The analysis raises several issues which will have to be addressed by the cotton industry as well as other sectors of U.S. agriculture. These include:

- Flexibility and reduced government support on income stability
- Structural pressure on all sectors of the cotton industry
- Regional competitiveness issues
- Landlord/Tenant negotiations and land values

Income Stability - One of the major reforms that appears to be receiving support from both parties, the administration and special interest, is the move toward greater flexibility in production decisions. While this flexibility will allow the market more latitude in directing planting decisions, it will also result in greater price risk as producers choose among alternative crops in a more uncertain economic environment.

Producers and other agribusinesses in the cotton sector will seek alternative means of reducing the increased risk exposure. Market power issues will likely become more prevalent as those with the potential to pass on risk will likely do so. Producers who have traditionally specialized in production, while somewhat insulated from downside price risk with the help of government payments, will be increasingly exposed to price swings. Improved marketing decisions will bring considerable premiums to those adept at managing price risk. The positive impacts, however, will not be universally achievable.

Many producers and agribusinesses will not have either the managerial capability or the inclination to compete in this more risky environment. Others will continue to specialize in production and turn the marketing over to others. Operating entities of sufficient size to specialize effectively in both production and marketing will do so. Many, however, are likely to turn to group marketing or cooperative efforts as a means of managing price risk.

Structural Pressure

Farmers, as well as the agribusinesses that supply them inputs and market their products, have become increasingly concentrated throughout this century. This trend will likely be enhanced under the New Farm Bill environment. As mentioned previously, decreased price and income stability will result in firms seeking to reach economies of size sufficient to internalize maximum efficiency associated with price risk reduction or vertically integrating through group activities. The bottom line is a more concentrated agriculture.

Increased flexibility at the regional level will place pressure on firms dependent on volume from a specific crop such as cotton. Shifts to grains, oilseeds or other alternative crops that prove more profitable in a single year could play havoc on agribusiness with market areas defined at regional levels, especially if single crop dependent. Cotton gins, for example, are of little use in processing and storing grains or oilseeds. Conversely elevators do not lend themselves to cotton processing in years where cotton is the markets commodity of choice.

Will there be investments in gins and elevators in this uncertain environment? The answer is yes. Will the firms likely be larger and capable of serving a larger geographical region? Again the answer is yes as a means of volume insurance. The results of this pressure is increased concentration in agribusiness. A similar story could apply to lending, input supplies, and other value-added processors as they seek to reduce the regional volume uncertainty inherent in full flexibility.

Regional Competitiveness

The panel farm discussion pointed out some areas of concern relative to regional competitiveness. The panel farm process, however, was never intended to be extrapolated to all cotton farms in the region. Therefore, regional competitiveness and flexibility opportunities are likely better addressed using ERS costs of production by region, adjusted for FAPRI/AFPC out-year estimates on revenues and cost inflation.

The flexibility issue is an interesting one for producers, lenders, other agribusinesses and economists. What will be produced in these regions if producers are given increased ability to respond to markets? At first blush analysts look at returns per acre in whole farm systems and may conclude that the farm will plant the crop that returns the most to the fixed inputs, management and risk given production constraints. Utilizing net returns per acre, cotton appears competitive with major alternative crops in the Southern Plains, Delta and Southeast. However, when returns are denominated by their cost of production, cotton falls to the bottom in each region. Low variable input crops such as wheat and soybeans prevail when per acre returns are compared to the cost of production that must be put at risk to achieve these returns. Although crude, this simplistic analysis may suggest greater movement out of cotton in the major production regions than FAPRI/AFPC anticipate. Certainly the mix within each region will

likely become more volatile each year given price expectations. This further supports the stability issues addressed earlier in the paper.

Landlord/Tenant Relationship and Land Values

If the seven year contract remains a requirement for receiving transition payments, landlords, and tenants may find themselves in unfamiliar territory relative to past negotiations. The issue centers around who is entitled to the transition payments and how is it to be distributed. Current language instructs USDA to be fair and equitable in protecting both landlords and tenants.

Since the majority of leased land in the U.S. is contracted based on single year verbal agreements, they rely on the good faith of the parties involved. The multi-year nature of the transition payment will likely change this tradition depending again on who has the right to the transition payments. To put it simply, are the transition payments attributable to land ownership or are they attributable to past operations of the land?

If the transition payment is attributable to historical operations, then land ownership in and of itself will have no role in the distribution of the payments. For example, if party A leased land from party B on a 25 percent share basis for the last five years, then under this assumption party A would have the right to 75 percent of the transition payment whether or not party A farmed party B's land in the future. The land, in this case, would only be used to construct the payment history and thus would not control the payments.

If the land controlled the transition payments, then the issue becomes more complicated given a multi-year contract requirement. A number of production and financial disagreements may evolve over the course of seven years related to how and who farms the land. It is unlikely that many landlords or tenants will want to sign seven year contracts tying them to the production of specific commodities. If this is the way the transition payments are implemented, look for considerable movements to cash leases and written contracts covering numerous contingencies.

In any event, the decoupling of transition payments, expected decline in market prices, and increased income risk will likely place downward pressure on the price of land. As a result, traditional rental agreements may need to be revised under conditions of the new farm bill.

Conclusions

Cotton policy issues focus on encouraging orderly adjustments for the agribusiness and rural community infrastructure, stability of farm income, appropriate interaction of supply and demand, and competitive prices that cover production costs for efficient operations. It is clear that the proposed provisions of the new Farm Bill will increase the flexibility of producers to respond to market signals. However, the financial risk will increase because of production and price uncertainties. The alternative grain and soybean crops will gain increased attention because

they offer reduced financial risk under favorable prices relative to cotton. The infrastructure of agribusiness and rural communities will need to adjust to cope with greater economic instability. The pressure to manage market risk internally will encourage more integration of production and marketing activities. The result will lead to a greater concentration in agricultural businesses and a possible change in the market structure for cotton. A multi-year contract on transition payments from the government will likely cause a considerable realignment in the traditional landlord/tenant relationships. Further, land values will likely weaken as farm earnings are squeezed between increasing production costs and highly variable and uncertain cotton prices.

The U.S. has the capability to expand cotton production to some 25 million bales by year 2000. But, the economic incentive must be favorable to offset the high capital outlays and resulting financial risk. The key to maintaining growth includes continued technological advances that keep production costs reasonable and below prices received. Past farm programs have assisted in providing income stability and rigorous price competition against man-made fibers and to maintain exports. Without program benefits, production may be forced to decrease to boost price. The resulting danger looms that at higher cotton prices, synthetic fibers could gain substantially in price competition. Furthermore, foreign growers with various levels of state support and low labor costs would likely claim a larger share of the international market. Hence, the U.S. cotton market would be smaller, and the industry loses to its fiber and foreign competitors.

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WILL COTTON BE KING AGAIN IN THE SOUTHEAST?

Marshall W. Grant

Things change about as fast in agriculture these days as in electronics and communications, especially with cotton. It seems every year there are genetically engineered changes that give us new varieties to meet the needs of protecting our crop and reducing our risk in production.

These changes give us opportunities to grow cotton on soils where cotton production was not practical in the past, like the high organic soils of eastern North Carolina and Virginia. Gene altering has given us cotton that is resistant to many worms which are very troublesome, and cotton which is tolerant to herbicides such as Roundup and Buctrel that control very troublesome weeds for us. As this technology is combined with more productive varieties, it will allow us to produce crops where it was not practical before.

Two things have happened in recent years that have had a dramatic impact on Southeast cotton production.

The first, and I think most important, thing to happen to cotton in the last 100 years is "Boll Weevil Eradication." This program began in North Carolina in 1978 and has reduced our cost of production by about \$70 per acre. This, of course, made cotton more attractive when compared to other crops. In North Carolina, this led to a dramatic change in cotton acreage. The acreage produced in 1978 was about 42,000 acres and trending down. The acreage in 1995 was in excess of 800,000 acres. This dramatic change is taking place in other states as the boll weevil eradication program moves across the South.

Alabama is now in the late stage of eradication. The six states in the Southeast region have gone from about 500,000 acres before eradication to about 3,500,000 acres in 1995. All indications at this point are that this acreage is permanent, in that the very expensive cost of the changes has happened; for example, the investment in cotton pickers and cotton gins has been made to the tune of an estimated \$500 million or more. Add to this the income per year from over 3 million bales of cotton, and the economy of the Southeast has to be improved. Without boll weevils we can also use longer season varieties of cotton, which means better qualities of cotton. Mills now rate Southeastern cotton quality at or above the Mid-South grown cotton. It's even good enough to replace some Western grown qualities.

The second thing that has been very positive for cotton is our decision to invest in a self-help research and promotion program which is operated through Cotton Incorporated. This has proven to be a very valuable program for cotton. We growers are very sure that our research and

promotion funds have been the reason for cotton regaining a major share of the fiber market in this country. Our share had dropped to about 30 percent of the U.S. fiber market. Today, it is above 50 percent and still growing. Our trademark is now in the top 5 percent in the U.S. consumer market as among the most recognizable.

Again, these two very innovative efforts by cotton growers have made cotton more competitive, especially in the Southeast.

Other factors are important to our long term future of U.S. cotton, such as the shortage of water for irrigation in the West, and resistance of the worm complex to pesticides in the Mid-South.

The current status of the farm bill also seems to favor cotton in the Southeast. Every indication is that peanut acreage will go down, with most of this going to cotton. It appears that more produce and fruits also are headed to Mexico. The Southeast has a freight advantage with most of America's spinners in the Southeast, and we are nearer to the large population of the Northeast. Recent legislation passed by the Senate gives cotton growers more flexibility to take advantage of these changes more quickly.

In summary, for the foreseeable future of the Southeast, cotton production is here to stay, and I believe continue to expand. The future of competing crops, corn and soybeans, does not look as good.

In the short run, cotton acreage probably will change very little in 1996 because of high grain prices, but I feel cotton prices will be better than grains in 1997 and future years, improving cotton's future in the Southeast.

We have an advantage for now, and I believe we will build on it.

U.S. AND INTERNATIONAL OUTLOOK FOR TOBACCO

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U.S. Department of Agriculture

U.S. OUTLOOK

Tobacco is an important U.S. crop. Around 120,000 farms produced tobacco with a 1995 farm value of about \$2.4 billion.

Cyclical swings in prices in the early part of this century led to grower efforts to control production. The nongovernmental efforts failed and in 1933 the Federal Government began support of farm income through various annual farm commodity programs. The Agricultural Act of 1938 established supply control and price support for certain commodities, including tobacco. Grower approval in a national referendum for each kind of tobacco, makes Federal support mandatory in combination with marketing quotas.

Financial resources for carrying out price support are provided by USDA's Commodity Credit Corporation, through grower cooperatives. By limiting supplies of tobacco, market prices are increased and in this way farm income is supported rather than through Government payments.

Despite a strong market and higher prices this season, the biggest factor affecting the longer-term U.S. tobacco outlook is probably competition--whether the United States can/will compete effectively in world tobacco markets. During the last year, less restrictive import restraints were implemented. This, combined with potential production increases in competitor countries and technologies that reduce the amount of high quality leaf needed to produce good cigarettes does not bode well for use of higher priced U.S. tobacco in U.S. or foreign-produced cigarettes. Other factors also impact the outlook for tobacco. These include: 1) any significant program changes, 2) taxation of tobacco products, and 3) Government regulations affecting tobacco use. Before briefly looking at the longer range prospects for tobacco, lets first focus on this year and the year ahead.

Short-Term Domestic Outlook

Last year, the most notable developments for tobacco growers were weather and disease problems that reduced yields. The smaller U.S. crop together with tighter world supplies and a more favorable outlook for manufacturers because of significantly reduced prospects for a large tax

increase and growing cigarette exports have strengthened demand for U.S.-grown leaf. Prices increased and total sales of flue-cured rose because of large farm carryover from the 1994 crop.

Improved demand together with an agreement by the five major U.S. cigarette manufacturers to purchase nearly 700 million pounds of surplus flue-cured and burley tobacco inventory at a discount from the three loan associations enhanced U.S. tobacco use prospects. These purchases together with increases in buying intentions significantly buoyed marketing quotas in 1995. With reduced loan stocks, a short 1995 crop, and greater cigarette production effective flue-cured and burley quotas are up in 1996 despite a reduction in the flue-cured basic quota. Growers may sell more tobacco in total during 1996/97 with gains in both flue-cured and burley. Price supports have edged up, but prices of flue-cured may decline after the 10 cent gain last year. Burley prices could rise slightly. Production costs are expected to increase.

For other tobaccos, the current marketing years' supplies of fire-cured and Maryland tobacco are higher, but supplies of dark air-cured and cigar tobacco are lower. Marketing quotas and acreage allotments for nine of these kinds of tobacco must be announced by March 1.

Growers raised 16 percent less tobacco in 1995 than the year before. However, significant sales of on-farm carryover flue-cured and burley tobacco lowered 1994/95 marketings only 3 percent. Still, lower carry in of flue-cured and burley reduced supplies for the 1995/96 marketing year by 5 percent. With strong auction demand, flue-cured loan receipts of less than 12 million pounds were a record low and burley loan receipts were virtually nil. U.S. tobacco prices will average about \$1.83 per pound for the 1995/96 season, up 6 cents per pound from a year earlier, surpassing the record high set in 1984.

With a gain in exports and a small gain in domestic consumption, U.S. cigarette output is estimated to have reached a record 745 billion cigarettes last year, 3 percent above a year earlier. Although total cigarette consumption rose a little, the number of cigarettes consumed per capita, 18 years and over, fell in 1995 to about 2,506 (125 packs)--a 0.5 percent decline but the smallest annual drop in over a decade. Lower cigarette prices are more than offsetting the effects of restrictions on where people can smoke, continued antismoking activity, and health concerns. However, small reductions in total consumption may occur in both 1996 and 1997.

Retail cigarette prices averaged 2.5 percent higher in 1995 than in 1994 but 1 percent lower than in 1993. Further price increases are likely in 1996. State excise taxes average 34 cents per pack in August and ranged from 2.5 cents in Virginia to 80.5 cents in Washington. The Federal excise tax remains at 24 cents per pack.

Among other tobacco products, a big development the last two years has been the rise in large cigar output. Higher priced cigar output now dominates total consumption. A ten percent increase in consumption in 1995 boosted consumption of large cigars to their highest level since 1988.

Based on 11 months data, the value of U.S. exports of tobacco and tobacco products in 1995 will be near 1994's \$6.7 billion record because of increased cigarette and unmanufactured tobacco exports. In recent years, leaf and products exports have taken about one-half the U.S. tobacco crop. U.S. tobacco leaf and product exports provided a substantial surplus over tobacco imports worth around \$850 million last year, thereby relieving some of the pressure on the overall U.S. balance of payments deficit.

Pete Burr will discuss export and import trends shortly. Before I turn the presentation to Pete, I would like to make a few comments about the longer term outlook for tobacco.

Longer Range Prospects

Despite what looked like dire prospects for the U.S. tobacco industry in the mid-1980's and again in 1993 and 1994, we recently ended a year when grower prices were strong, loan takings at a record low, cigarette production a record high, cigarette exports a record high, a tobacco trade balance near the record high and the first increase in U.S. cigarette consumption in 10 years. Can these kinds of numbers be repeated as we enter the 21st century. I have been involved with this industry too long to say its impossible, it is not. But, clearly the likelihood is much greater for reduced numbers.

As mentioned earlier, competition is the most pressing problem the United States tobacco industry must deal with. Over time, unless U.S. prices come more in line with major competitors, more and more of the world's production will move overseas. In addition, multinational firms are likely to expand operations overseas and reduce or slow the increase in use of U.S.-grown leaf in cigarettes manufactured for sale overseas. These factors could curtail overseas sales of U.S.-grown leaf.

During the last few years, domestic sales of cigarettes have stabilized. However, the likelihood of continued stable or growing U.S. cigarette consumption is small. Still, we foresee only small annual declines during the next several years.

Clearly, though, big reductions in cigarette consumption could occur during the next decade. The push to dramatically increase excise taxes could reappear with success. The Food and Drug Administration (FDA) could start regulating cigarette sales and/or use and the Occupational Safety and Health Administration of the U.S. Department of Labor might prohibit or severely restrict workplace smoking. Although cigarette manufacturers have made no payments under product litigation suits, this could change. Any changes or combination of changes that restrict tobacco use and/or increase the costs of tobacco products, will reduce consumption.

INTERNATIONAL OUTLOOK

The United States is one of the world's leading tobacco exporting and importing countries.

U.S. leaf exports remain strong and cigarette trade in 1995 is expected to surpass last year's record high. Many countries are beginning to realize the export earning potential of tobacco and are aggressively seeking to capture a larger share of the world tobacco market. The United States still maintains a clear advantage in terms tobacco quality. However, price is becoming more and more of a factor, and many countries are now selling leaf tobacco at nearly half the price of the United States. Consequently, the world leaf market has become a very competitive place.

U.S. Tobacco Trade

In 1994, the United States exported 434 million pounds of unmanufactured tobacco, valued at \$1.3 billion. This was 5 percent lower in quantity and 1 percent lower in value from 1993. The overall decline in U.S. leaf export sales in 1994 can be mainly attributed to a world oversupply situation that existed during the past few years. Ample supplies of leaf tobacco generally depressed prices and increased the level of competition.

Flue-cured and burley tobaccos, including stems, when combined account for over 90 percent of U.S. leaf exports. In 1994, flue-cured exports reached 237 million pounds, valued at \$749 million. This represents a decrease in quantity of nearly 4 percent, and a drop in value of 1 percent from 1993. U.S. burley exports for 1994 reached 110 million pounds, valued at \$381 million, down 4 percent in volume, and down 2 percent in value.

The United States' leading unmanufactured tobacco export markets in 1994 were Japan, Germany, the Netherlands, Turkey and Thailand. When combined, these markets account for about 60 percent of U.S. leaf exports.

So far in 1995, which is for the period January through November, U.S. leaf tobacco exports totaled 414 million pounds. This is about 6 percent or 23 million pounds more than the same period in 1994. We expect that U.S. leaf exports will continue on this positive note and end the year with shipments of over 452 million pounds.

U.S. cigarette exports in 1994 reached a record high of over 220 billion pieces, valued at almost \$5 billion. This represents an increase in volume of nearly 13 percent, and an increase in value of 26 percent from 1993. The United States' leading cigarette export markets in 1994 were Belgium/Luxembourg and Japan, which when combined account for over 58 percent of U.S. cigarette trade. Other markets include Saudi Arabia, Lebanon, Singapore and Hong Kong.

For 1995, U.S. cigarette exports are expected to reach another record high. Through November, cigarette exports totaled over 211 billion pieces and should end the year at around 235 billion pieces. Shipments to Japan so far this year are running nearly 11 percent higher than the same period last year.

U.S. leaf imports for consumption have climbed quite dramatically over the last several years. Although a good deal of this was oriental tobacco, a tobacco type not grown in the United States, imports rose from about 433 million pounds in 1988 to over 1 billion pounds in 1993. However, in 1994 imports plunged by nearly half to 536 million pounds, valued at slightly more than \$613 million. Overall, the leading suppliers of U.S. leaf imports in 1994 were Brazil, Turkey, Zimbabwe, Malawi, Argentina, Thailand and Greece.

So far this year, imports are again running lower. Through November, U.S. leaf imports totaled 386 million pounds, valued at \$512 million. That's 14 percent lower in volume and 3 percent lower in value from 1994. Flue-cured imports are down nearly 45 percent at 57 million pounds, and burley is down 73 percent to 31 million pounds.

International Situation

China dominates the world in terms of leaf tobacco output. China produces over 40 percent of the world's leaf tobacco, nearly 5 times the level of the world's second leading producer - the United States. For 1996, China's unmanufactured tobacco production is expected to total over 6.8 billion pounds farm-sales-weight, 32 percent more than in 1995, and almost 40 percent higher than in 1994. Flue-cured tobacco accounts for nearly 90 percent of China's leaf output.

The overall quality of China's leaf tobacco is still relatively low. However, the Chinese tobacco monopoly is encouraging the production of better quality tobaccos and cutting back on the output of lower grades. This policy is fueled by an increased demand in China for higher quality tobacco products brought on by economic growth.

Most of China's leaf output is consumed domestically. However China is becoming increasingly interested in the export earning potential of leaf tobacco. For 1996, China's leaf exports are forecast to total 115 million pounds, over 60 percent higher than in 1990. Flue-cured accounts for over 90 percent of this trade. The leading export markets for Chinese leaf are the European Union, Russia, Indonesia, Singapore, Canada and the United States.

India's total leaf output in 1996 is forecast to reach over 1.1 billion pounds. More than 75 percent of this is dark air-cured and sun-cured tobaccos. This year, India's production of dark tobaccos is expected to total about 838 million pounds, about 5 percent lower than last year.

Flue-cured tobacco plays a major role, particularly on the export side. India's flue-cured output this year should total about 262 million pounds. Although higher in 1996, India's production of flue-cured has been following a downward trend, down about 5 percent from 1994, and 25 percent lower than in 1993 and 1992. Much of this decline is due to lower prices brought on by high stock levels, and the Tobacco Board's efforts to reduce flue-cured output in certain less profitable areas.

India's total leaf exports in 1996 are forecast at over 155 million pounds, up from 143 million pounds in 1995. Flue-cured tobacco accounts for over 60 percent of exports and are expected to reach over 110 million pounds this year, 11 percent higher than in 1996, and over 65 percent higher than in 1994.

Despite an agreement by Russia that they would purchase nearly 45 million pounds of Indian tobacco annually between 1994 and 1996 as part of India's ongoing debt repayment, there have been no sales made through 1995. However, the Indian tobacco industry is optimistic that exports to Russia will eventually pick up as the Russian cigarette industry continues to modernize. Indian exporters are also turning their market development efforts to the Far East and Southeast Asia, particularly Vietnam.

Brazil is the world's leading flue-cured exporting nation and is fourth in the world as a burley exporter. Flue-cured tobacco is the mainstay of Brazil's leaf industry, accounting for over 70 percent of their production, and nearly 80 percent of their exports. This year, Brazil's flue-cured output is expected to increase 10 percent to over 700 million pounds on more than 412,000 acres. The tobacco industry in southern Brazil is expected to raise grower prices in 1996 to encourage plantings in order to avoid tight supplies.

Brazil's flue-cured exports reached a record in 1994 with trade of over 502 million pounds. Much of this increase can be attributed to high stocks on hand. In 1995, flue-cured exports fell back to around 403 million pounds and are expected to remain near 409 million pounds in 1996.

Significant growth in Brazilian exports is not expected in the short term. The relative strength of the Brazilian real against the U.S. dollar has made Brazilian leaf relatively more expensive and consequently less competitive. Brazil's export prices for the 1995 season were 30 to 35 percent higher than in 1994.

Brazil has also become a major player on the world burley market. For 1996, Brazil's burley crop is expected to be 165 million pounds, with exports reaching over 88 million pounds.

The European Union is by far Brazil's leading export market with total leaf sales in 1994 of over 277 million pounds. The United States is second with trade of 159 million pounds. Other markets for Brazilian leaf include Japan, the Philippines and Egypt.

In Turkey, total unmanufactured tobacco production is expected to reach almost 500 million pounds in 1996. Oriental tobacco accounts for over 95 percent of Turkey's leaf output and is expected to reach almost 480 million pounds this year, about 32 million pounds more than in 1995. The Government of Turkey is attempting to control oriental tobacco production in order to solve the expensive problem of chronic over production and high stocks. Flue-cured output, although still relatively low, has increased more than 5-fold since 1990 and is expected to

reach 16.5 million pounds in 1996.

Exports of oriental tobacco this year are forecast at 243 million pounds, down from a record 265 million pounds in 1995. A decline in the demand for lower quality oriental tobaccos and greater supplies of oriental worldwide account for much of this decline.

Turkey's exports, however, are expected to remain strong for the foreseeable future. The Government's decision to end its Minimum Export Price system and allow for greater export pricing flexibility, along with changes in U.S. import tariffs and content laws, and increased consumption from the Former Soviet Union, are expected to keep the demand high for Turkish oriental tobacco.

Turkey's imports of unmanufactured tobacco are expected to rise as domestic production of non-oriental tobaccos used in the production of the increasingly popular American blend cigarette is not sufficient to keep up with demand. For 1996, leaf imports are forecast to reach about 66 million pounds, with about 70 percent of this flue-cured tobacco.

In **Zimbabwe**, flue-cured tobacco accounts for over 95 percent of total leaf production. Zimbabwe's flue-cured output in 1996 is expected to total 463 million pounds, more than 5 percent higher than in 1995, and nearly 24 percent more than in 1994.

Favorable prices pushed plantings up 7 percent last year, and growers are responding to a call by the Zimbabwe Tobacco Association (ZTA) to increase production of flue-cured tobacco an additional 7.5 percent in 1996.

Zimbabwe exports most of its flue-cured crop. Exports of flue-cured in 1996 are forecast to reach over 385 million pounds, an increase of about 7 million pounds over 1995. The European Union accounts for nearly half of Zimbabwe's leaf exports, followed by markets in Asia and the United States.

Italy is a major producer and trader of flue-cured, burley and dark air-cured tobaccos. Italy's total leaf output this year is projected at 289 million pounds, about the same level as in the past four years.

However, many changes have recently occurred in the Italian tobacco sector. Major modifications have been made in the European Union's Common Agricultural Policy for tobacco resulting in a substantial decline in Italy's leaf output during the period 1990 through 1992.

In past years, the tobacco CAP heavily subsidized EU tobacco production and trade to the point of overproduction. Italy's leaf output soared from 204 million pounds in 1976 to over 400 million pounds in 1990. Leaf supplies grew to excessively high levels and the program

became a significant financial burden to the European Union. Many growing regions were producing tobacco strictly for the subsidy.

However, beginning in 1992 the EU cut production quotas, and eliminated or reduced many of the tobacco subsidies. These changes had a dramatic effect on the EU's production and trade of the problem varieties, and for Italy this is particularly true for the dark air-cured tobaccos.

In 1988, Italian production of dark air-cured leaf totaled over 162 million pounds. However, beginning in 1991 output of these tobaccos declined dramatically and are expected to fall to below 40 million pounds this year.

Italy's flue-cured and burley tobaccos have not been hit as hard by the CAP changes. Output of these types have actually trended higher. Production of flue-cured tobacco in 1996 is expected to total almost 106 million pounds, unchanged from last year and about 4 percent higher than in 1994. Burley output in 1996 is expected to total about 100 million pounds.

Italy's leaf exports this year are forecast at about 220 million pounds. Flue-cured and burley when combined account for about 70 percent of this trade. Burley exports are expected to reach 88 million pounds, and flue-cured about 73 million pounds. Most of Italy's flue-cured and burley exports are destined to other EU markets, although Egypt is a sizable burley market. Most of the remaining exports are dark-air-cured and oriental tobaccos and have fallen as dramatically as output.

Greek tobacco production is expected to total about 287 million pounds in 1996, down slightly from 1995, and 3 percent lower than in 1994. Oriental tobacco accounts for about 65 percent of Greek output with an expected crop size of 184 million pounds in 1996, down slightly from 1995. Flue-cured output is forecast to total 76 million pounds, while burley production is likely to be nearly 27 million pounds. A gradual reduction in Greek tobacco output is expected over time due to the changes already mentioned in the European Union's (EU) Common Agricultural Policy (CAP) for tobacco.

Exports are important to the Greek tobacco industry. In 1996, Greek exports are expected to reach 176 million pounds, down 20 percent from 1995 and 27 percent lower than 1994. Lower exports of both flue-cured and oriental tobaccos due to reduced output and the elimination of the CAP's tobacco export subsidy account for much of the decline.

Closing Remarks

As you can see we are faced with a very competitive international market. Leaf quality is still a major factor in making a sale. However, many countries are now growing tobacco that is desirable and it is becoming more and more a factor of simple economics when seeing who is moving ahead. That concludes my remarks. I thank you for your attention.

GLOBAL PERSPECTIVES ON MEAT

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This paper presents trends and prospects in world meat markets to the year 2000. It provides an assessment of impacts of recent policy changes on markets and trade and the need for further policy reform. It is largely based on work carried out at the OECD in the context of its continuing effort to promote informed discussion on emerging policy issues. The projections used in this paper are based on a procedure developed by OECD in which market intelligence in Member countries and the OECD Secretariat are combined, together with information from other sources, in an economic model of OECD agriculture. The paper points out that there will be a gradual decline in the distortion in international meat markets over the medium term. But even with the Uruguay Round agreement now being implemented, much remains to be done to further liberalize international meat trade. Some of the key issues over the medium term include policy reform affecting the feed sector, a possible re-emergence of beef surpluses in the European Union and changes with respect to the sanitary status of a number of countries.

The Outlook in a nutshell

Key assumptions

The projections presented in this report are not forecasts *per se*. They constitute a plausible medium term future for meat markets, given a number of conditioning assumptions. These relate in particular to parameters of agricultural policies in force or announced by OECD countries and the main features of the macro economic environment.

The implementation of the Uruguay Round agreement is one of the main policy assumptions underlying the projections. For meat, they include, *inter alia*, the introduction of tariff quotas for beef in the United States and Canada, the reduction in import tariffs in Japan for beef and pork, the increase in minimum access commitments in Korea for beef, pork and poultry and the limits unsubsidised exports by the European Union. In this context, no unsubsidised beef exports are anticipated from the Union, so that the limits on subsidised beef exports effectively constitute a limit on total beef exports.

Under the Uruguay Round agreement, special safeguard measures exist against a rapid increase in beef and pork imports in Japan. These are triggered when cumulative imports of beef and pork are more than 17 and 19 per cent larger respectively than the amount imported during the same period of the previous year. The special safeguard measures were triggered for both meats in 1995, but this is not assumed to happen again during the remainder of this decade. Therefore, tariff rates will be reduced through to 2000 as agreed in the Uruguay Round.

The changing status regarding foot and mouth disease in Latin American countries, but also in Europe, is a development with potentially important implications for world meat trade, particularly for beef and pork. It is assumed in this outlook that sanitary requirements in importing countries will be relaxed to

recognize the regionalization principle, i.e. to allow imports of beef and pork from foot and mouth disease free zones within countries where the disease is still endemic elsewhere. However, the 'zero risk' condition, which requires that the disease is eradicated and that vaccination against it no longer occurs, is not assumed to be relaxed.

Assumptions on key macro economic indicators are important conditioning factors underlying the projections. In this respect, it is assumed that real income growth in OECD countries will average between 2.5 and 3 per cent to the year 2000 and that inflation will be kept under control at around current rates. However, real income growth in developing countries is assumed to be substantially stronger than on average during the 1980s while that in the Dynamic Asian Economies and China will continue at high levels. Finally, the US dollar is assumed to remain relatively weak against other major currencies. While keeping US meat exports price competitive, it would not facilitate unsubsidised exports from the European Union.

Although not an assumption in the strict sense, feed costs are a key element in the future development of meat markets. In this respect, the outlook suggests that while grain prices will fall from their current highs, they are likely to stay well above the average levels prevailing during the first half of this decade. This is affecting costs of production for pork and poultry more than that for beef and will tend to reduce the prices of beef relative to that of the other meats.

Main projections for beef markets

Abundant total meat supplies will affect beef prices in the Pacific region. Beef production is expected to continue to grow in the United States, Australia and New Zealand in 1996 and 1997. This is coupled with a record level of US pork production in 1996 and a sustained increase in that of poultry. The large total meat supplies are depressing US beef prices for the next few years. There has also been recently some strengthening in the US dollar exchange rate against the yen. At the same time, the recovery in Japan's economy is slow in coming about and beef export supplies from Australia are substantially increasing. All these factors are putting downward pressure on Pacific beef prices for the next few years. Measured by the price for Nebraska Choice steers, Pacific beef prices could fall to a low of about US\$ 2.30 per kg in 1997.

The decline in prices will not be enough to trigger a major run down in Pacific cattle numbers. This is also due to the fact that cereal markets are expected to have adjusted to current high prices by 1997 so that feed costs will have fallen substantially by then. With an expected recovery in Japanese income growth, continued rapid growth in other Asian countries and further improvements in market access in that area, import demand is likely to catch up gradually with the growth in supplies. As a result, Pacific beef prices are projected to start increasing again later in the 1990s, with the Nebraska Choice grade steer price recovering to US\$ 2.40 per kg in 2000. By that time, the Asian side of the Pacific Rim will be the largest beef importing region in the world, with total imports of beef more than 1.6 million tonnes. This is some 400 kt larger than the projected combined beef imports by NAFTA from third countries.

The situation on the Atlantic beef markets has been depressed for many years with growing EU beef intervention stocks in spite of subsidised beef exports of the Union reaching record levels in 1992 and 1993. However, EU beef intervention stocks are now all but eliminated, its subsidised exports will fall under the Uruguay Round agreement and restrictions on premia payments will help to stabilize its beef

production. At the same time, Argentina and Uruguay will take advantage of their access to the North American beef market under the 20 kt quotas allocated to each of them. In the context of the Mercosur trading arrangement, these countries may also ship more beef to Brasil or other partners in the arrangement. In 1995, an estimated 25 per cent of Argentine beef exports went to Chile and Brasil, which compares with about 7 per cent in 1991.

Although there would not seem to be the same source of demand strength in the Atlantic meat markets as exists in the Asian Pacific region, export supplies of beef should be more limited, in particular that of subsidised producc. Reflecting these developments, there has recently been more price strength in the Atlantic beef trade, with beef export prices from Argentina and Uruguay in 1995 about 20 per cent higher than on average during the first three years of this decade.

If there were to be renewed pressure to build up intervention stocks in the European Union, the gap between international prices in the Pacific and Atlantic beef markets would likely be further reduced. It is current EU policy not to intervene in the beef market unless market prices have fallen to a level were intervention becomes obligatory. This is the case when average EU market prices fall to less than 78 per cent of the intervention price to less than 60 per cent of that price in one Member State. That would reduce the current gap between steer beef prices in that particular Member State of the European Union and the United States from about 25 to 15 per cent. This would be less in the future, as EU intervention prices are likely to remain stable and US beef prices projected to increase again.

Main projections for pork and poultry markets

Expcted high prices for feed grains and oilmeals compared to historic levels lead to slower growth in pork and poultry production in the OECD region. This is particularly so in Pacific countries, where world price fluctuations are fully reflected in domestic feed costs. Even though feed costs are likely to decline from their current high levels, the projections show that the index of feed costs will stay well above the average for 1990 to 1994 during the remaining years of the decade in North America and Oceania. The situation in the European Union and Japan is substantially different, even though grain prices rose sharply in 1995 as well. Nevertheless, because of the implementation of the final phase of CAP reform in the European Union and the substantially higher value of the yen compared to the early 1990s, feed costs are projected to remain well below their 1990 to 1994 averages in both regions.

The projected developments in feed costs will affect feeding margins for livestock producers in OECD countries. Compared to average levels in the early 1990s, margins will tend to improve in the European Union and Japan but to deteriorate in other countries. Other factors may have an impact on margins, too. For instance, increasing environmental limitations on intensive livestock farming may reduce any positive effect of generally higher feeding margins in Europe and Japan. Elsewherc, the effect of higher feed costs may be offset by continued productivity growth. That could be the case in particular in the United States, where the pork industry is going through a period of rapid structural change.

The overall impact of these developments is to reduce the growth rate of pork and poultry production in the OECD region. Compared to the 1990 to 1994 period, the average annual rate of increase in OECD pork production between 1995 and 2000 is projected to fall from more than 1 to about 0.5 per cent while for poultry it is expccted to decline from close to 4 to less than 3 per cent. The decline in the rate of growth of pork and poultry production will do only little to support producer pricces for these meats over

the forecast period. With lower feed costs than before CAP reform in the European Union, pork and poultry prices are likely to remain relatively low as well. Productivity gains in the US pork industry are expected to keep break-even prices for pork well below historical levels. Despite these price expectations, little growth is projected in pork consumption. Demand for poultry, on the other hand, remains very buoyant in OECD countries, and continued growth in consumption is expected despite somewhat higher prices in certain countries.

With rising incomes and a gradual but continued move towards diets which are richer in proteins, meat demand is strengthening in non-OECD countries and consumption levels for pork and poultry are increasing. Much of the increase in requirements in the non-OECD region will be met by a rise in domestic production, but imports from OECD countries are projected to increase. The bulk of the growth in non-OECD imports is likely to be supplied by larger shipments of pork and poultry from the United States. Efficiency gains in pork production and a favourable exchange rate will make US pork very price competitive in world markets and the United States will shift from a net importer to becoming a net exporter of pork. Much depends, however, on the ability of EU traders to export without the use of subsidies. The future development of relative feed costs in and outside the European Union and of the US dollar exchange rate against the ECU are important elements in this context.

Issues and uncertainties

The trends presented in this paper are a plausible outcome of world meat markets over the medium term, given the conditioning assumptions on which the projections are based. If reality were to be different than what is assumed, the outcomes would be affected as well. Some of the uncertainties related to this are analysed in the following sections.

The European Union and its beef stocks

The European Union continues to produce more beef than it needs. The situation appears to remain manageable for the next few years, with small intervention stocks and subsidised beef exports staying within the limits under the Uruguay Round agreement. In the final years of the decade, however, a combination of stagnating consumption and a small increase in production lead to a build up of stocks again. This situation is also very sensitive to small deviations in production and/or consumption from projected trends. The projections for EU beef production are based on an assumption that stricter criteria for direct income payments to beef producers will have the effect of reducing the rate of growth in the beef cow herd over the medium term. But the desired effect of reducing the substitution of beef for dairy cows, which has been prominent since the introduction of the milk quota scheme in 1984, may not or not entirely be reached. If this substitution were to continue at the same rate as prevailed since 1984, the impact on EU beef production would still be very limited. It has been estimated that the cumulative extra beef supply in 2000 under these conditions would be less than 150 kt.

The impact on the EU beef surplus of small deviations in consumption is much greater. With a small projected decline in the relative beef price over the medium term, the drop in per capita beef consumption, which has been a long term phenomenon, is expected to come to a halt. However, this assessment may be too optimistic. If beef consumption per head would continue to fall along its long term trend, and assuming that subsidised exports will be at their GATT maximum, a beef surplus of more than 800 kt would emerge in the EU market by the year 2000.

Current EU policy is for there to be no automatic intervention in the beef market when prices fall below the intervention purchase price. In the absence of intervention purchases and in view of the limitations on subsidised exports, market prices would continue to fall under those conditions. However, when market prices fall to a Union average of 78 per cent of the intervention price and to less than 60 per cent of that price in one member state, then intervention purchases become obligatory under the safety-net procedure. With such a price decline, however, the beef supply-and-demand balance in the European Union would be altered to the extent that there would be little growth in stocks during the last years of the decade.

The other effect, of course, would be that internal EU prices would be brought more in line with those in world markets. If the EU beef intervention price would remain constant at ECU 3.48 per kg, then for safety-net intervention purchases to be triggered, the market price in at least one Member State should have fallen to 60 per cent of this level, or to ECU 2.09 per kg. With an assumed exchange rate of 0.8 ECU per US dollar, this would translate in US\$2.61 per kg. That would be less than 10 per cent more than the projected price for US choice steers in 2000.

The change in foot and mouth disease status in Latin America

Two zones exist in world beef trade: the Atlantic zone, where foot and mouth disease is endemic, and the Pacific zone where this disease does not exist. Sanitary restrictions prohibit trade in other than thermo-processed beef between the two zones. Structural surpluses, triggered by support policies for beef and dairy producers have reduced international prices in the Atlantic beef trade to well below those in the Pacific. In 1994, the average fob unit value for all beef exported from Australia was more than 40 per cent higher than that of Argentina. In the same year, the fob price of Australian frozen cow beef to the United States was nearly 60 per cent higher than the average fob export price of frozen cow beef in Uruguay. To gain access to the more profitable FMD free markets, Latin American countries embarked on a programme of FMD eradication in the late 1980s. Uruguay was declared free of FMD in 1995, and vaccination against the disease no longer takes place. While there were no outbreaks in Argentina in 1995, herds are still vaccinated in all but the three southern provinces. On the other hand, outbreaks continue to be recorded in Brazil.

The Uruguay Round decisions on sanitary and phyto-sanitary measures included the regionalization principle, which recognizes FMD-free regions within countries where the disease is otherwise contained through vaccination. At the end of 1995, the US sanitary legislation was modified to take account of this principle. The so-called zero risk condition was maintained in the new legislation, which is to say that regions where vaccination against FMD still occurs, will not be allowed access to the US beef market. Under the new legislation, Uruguay and Argentina may ship beef against the 20 kt quota allocated to each of these two countries by the United States. Quota limitations, the zero risk condition and the small substitution rate between grain-fed and grass-fed beef are expected to limit the immediate impact of granting low-cost Latin American beef producers access to the US market. However, given the size of the price differential between beef exported from Australia and Latin American countries, these latter countries may well be in a position to export beef to the United States under the over-quota tariff rate of currently 30.3 per cent. In any case, if other Pacific importers would introduce regulations similar to the new US legislation, the implications would be more substantial. Growing low-cost Latin American beef exports would compete directly with grass-fed beef exported from Australia and New Zealand and would put downward pressure on Pacific beef prices.

Flexibility in feed demand

Policy interference in feed grain markets and structural changes in the livestock industry are affecting feed demand. The short and longer term implications are not fully transparent. In the context of an outlook for structurally lower grain stocks over the medium term, less flexible feed grain demand may have the effect of increasing volatility in feed grain prices and in feeding margins of livestock producers.

A case in point is the recently introduced tax on cereal exports in the European Union. This has the effect of withholding export supplies from world markets, driving world prices up further than otherwise would have been the case. The export tax has a direct impact on world prices, to the extent that it keeps grains in stock rather than supplying it to export markets. If stocks would have been allowed to be run down, then without the export tax, the European Union could have maintained its level of wheat and coarse grain exports in 1995/96 at the level of 1994/95. In doing so, it would have added an extra 4 million tonnes of coarse grains and 6 million tonnes of wheat to world trade. There is also a more indirect and longer term effect. Through introduction of the export tax, feed costs within the European Union will not increase to the same degree as do cereal prices on world markets. This has two implications. Firstly, it prevents adjustment of the large EU livestock sector and thus of its internal feed grain demand and export availabilities. Again, this will increase feed grain prices on world markets by more than would have been the case otherwise. Secondly, it improves the competitiveness of EU livestock production relative to those meat producers which face feed grain costs at world market prices. This will facilitate unsubsidised EU meat exports, in particular for pork and poultry.

The structural change currently underway in the US pork industry has also implications for world meat markets. Integrated systems of pork production, similar to those in the poultry industry, are increasingly taking the place of the traditional hog-corn producers. This is generating productivity gains which are expected to keep break even prices for US pork production well below historic levels. This will increase the competitiveness of US pork on international markets, but also tend to reduce its price relative to that of other meats. The market behavior of these integrated production systems is also likely to be different. Their reaction to short term price changes of feed grains will be less flexible than that of hog-corn producers, who can maximize profits (or minimize losses) by shifting relatively quickly between feeding and selling grains. The supply adjustment of these large producers to changes in pork prices will also be less than that of the sector as a whole, because their marginal costs of production are lower than the average of the sector. All these changes appear to have led to a smoother pig production cycle in the United States. However, a more pronounced cyclical pattern of production may well emerge again as the industry domination of the very large production units increases and the gap between the marginal costs of production of the most efficient producers and the industry average becomes smaller than is the case at the moment.

Concluding remarks

Some of the uncertainties related to medium term developments in world meat markets are of a largely uncontrollable nature. This is the case, for instance, with exchange rate movements or income growth rates. In a number of cases, however, the medium term outcomes can be vitally affected by policy makers or other actors in the market place. The Uruguay Round agreement does not do away with the fact that there is still a lot of policy interference in the inter-connected feed grain and livestock markets. Policy

reform towards less government interference in the functioning of these markets is only half way. The result of reform would ultimately be more efficiently functioning international markets, with a minimum of price fluctuations to the benefit of (meat) producers and consumers - both consumers of the final products as well as the livestock industry as a consumer of feed grains. It would be a very bad thing indeed if the reform train would come to a halt half way down the road. What that would achieve is to leave the world with structurally lower commodity stocks but without the required flexibility in supply and demand to cope with such a situation. It would maximize the potential for price instability in the future, penalizing producers as well as consumers.

INTERNATIONAL AND DOMESTIC DAIRY OUTLOOK

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International dairy prices in 1996 are expected to remain relatively strong but to run lower than during late 1995. Russia and the Arab countries are expected to take fairly sizable quantities at relatively high prices and world stocks are very low. However, some butteroil users are cutting imports and supplies will be up from Oceania and (to a lesser extent) the U.S. and the European Union (EU). Butter prices are projected to stabilize later in the year, once the current downward adjustment is completed.

Dry milk prices probably will drift lower in coming months. Mexico and Algeria have not been importing as much as in the past, Oceanic supplies are larger, and buyers are holding back as much as possible to see how low prices might go. However, price declines will be limited by the virtual absence of intervention stocks and lower exports from the U.S.

In the longer run, butter prices are projected to be fairly stable. However, nonfat dry milk prices are expected to move slowly higher as demand grows from East Asia. The U.S. is expected to be a commercial butter exporter, but a small price gap is projected to persist (under current policy) for skim solids.

Cheese markets probably will be unsettled because of the GATT. European supplies will be restricted, making international markets quite sensitive to New Zealand's and Australia's ability to produce larger and more diverse amounts of cheese. During the next 5 years, the U.S. is not expected to export much cheese. However, individual companies may find significant opportunities for cheese and other products in nearby markets, markets where Americans have marketing advantages, or markets for dairy-based products with substantial further processing.

The 1996 Outlook

U.S. milk production in 1996 is projected to rise slightly, as longer-run structural forces overcome higher feed prices. Concentrate prices will be up sharply and prices of good quality alfalfa hay remain high, particularly in the West. However, higher milk prices are expected to offset a significant share of the rise in feed costs. Cost pressures are not projected to cause much delay in western expansion or in development of "new style" operations in northern areas. Meanwhile, cull cow prices will stay low, and the replacement heifer herd is large. Milk cow numbers are expected to decline about 1 percent in 1996, slightly more than in 1995.

The lowest milk-feed price ratios since the mid-seventies will trim expansion in 1996 milk per cow. Farmers will be conservative about increases in concentrate feeding, and growth in the number of cows receiving bovine somatotropin (bST) may slow. Milk per cow is projected to increase less than 2 percent in 1996, about the same as 1995's weather-limited rise.

The 1-percent rise in milk production is expected to be easily absorbed by expansion in commercial use. Sales of milkfat and skim solids are expected to increase 1 to 2 percent in 1996. Butter exports are expected to absorb the available butter, and domestic cheese sales are expected to grow. Fluid milk sales and nondairy use of nonfat dry milk are projected to be steady.

The 1996 surplus of skim solids will be small, while the milkfat surplus could be very small. Removals of skim solids are projected to be equivalent to 2 to 4 billion pounds of milk and will be mostly exports under the Dairy Export Incentive Program (DEIP). The milkfat surplus could be less than 1 billion pounds milk equivalent.

Tight markets are expected to generate higher milk prices, particularly during the first half. The 1996 average milk price is projected to rise 3-6 percent from 1995's \$12.78 per cwt, to possibly the highest since 1990. Prices will be particularly sensitive to domestic demand for skim solids, variations in milk production, and international butter prices.

The Intermediate Outlook

Milk production in the intermediate run is projected to rise about 1.5 percent annually. Milk cow numbers are expected to decline less than 1 percent per year. Resources probably will slowly continue to leave dairying, particularly in areas of the most marginal soil quality. However, these exits are projected to be largely offset by continued -- but slower -- expansion in western milk production, emerging growth in parts of the Plains, and further development of "new style" farms in core northern production areas. These new style farms are much larger, require less investment per cow, use a much higher share of purchased inputs, and employ industrial-style division of labor.

Milk per cow is projected to grow about 2 percent per year. Milk-feed price ratios will run considerably lower than during the past 10 years. The incentive to boost milk per cow with heavy grain feeding will be less. However, use of bST is believed likely to increase gradually. More farmers probably will inject a larger share of their herds as expertise in profitable use grows.

Domestic demand is projected to grow slowly. Cheese sales are expected to rise and dairy ingredients will be inexpensive ways of boosting quality in many processed foods. In general, relative retail prices will favor expanded commercial use of dairy products.

Expansion in domestic dairy demand is not anticipated to keep pace with growth in milk supply, resulting in the slow erosion of inflation-adjusted prices. However, some increase in nominal prices is expected as future supply shifts are not projected to be as large as those of the eighties.

Key Uncertainties

Even small differences in annual rates of change can substantially alter the picture after a few years have passed. A number of uncertainties can be identified as having the potential to substantially affect domestic market conditions and our competitive position in international markets.

Cheese uses more than 40 percent of the milk supply and growth in cheese sales has been a major force expanding overall commercial use. At some point, Americans will no longer wish to eat more cheese. When that occurs, growth in dairy demand will slow considerably.

The recent breakup of some longstanding product trends also raises demand uncertainties. Sales trends for individual types of fluid milk have shifted in recent years, dramatically so in some cases. The net result seems to be stagnant total sales instead of fractional increases. The difference between small increases and small decreases would be substantial in 5 years. Use of nonfat dry milk in processed foods in recent years seems to have reversed a long downtrend. This reversal is quite plausible in light of recent conditions, but the future direction of such sales is quite uncertain.

Availability of high quality alfalfa hay will be a more important constraint on expansion of western milk production. During the last 2 years, dairy demand has bid up the price of high quality alfalfa throughout the West, despite heavy hay production. Further expansion in the dairy herd will require more alfalfa output, boosting the proportion of high quality hay, or learning to use poorer forage -- not just finding remaining pockets of underutilized alfalfa. Milk production will continue to grow, but alfalfa supplies will significantly affect the rate.

Structural adjustment in the Midwest and Northeast will be affected by the development of new style dairy farms and the success of low-input dairying. The projections imply that industrial type dairy farms will slowly increase in importance, as the technology and management is adapted to northern conditions. Similarly, the projections do not imply that shifting to intensive pasture management to provide a significant share of feed will greatly slow the exit of resources from dairying. This style operation may extend farm viability of current producers but will not attract a new generation.

Learning to use bST is proving difficult. A sizable group has found themselves at the edge of profitable response. If these producers unlock the secret of profitability, bST use could jump. On the other hand, producers could well decide the returns from bST are not worth the additional management needed to use it.

Lastly, recent policy proposals have included dramatic changes in the way things are done in the dairy industry. Large disruptions would be possible during the adjustment period. Also, some features could substantially alter price alignments among domestic markets and between domestic and international markets.

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International dairy prices in 1996 are expected to remain relatively strong but to run lower than during late 1995. Russia and the Arab countries are expected to take fairly sizable quantities at relatively high prices and world stocks are very low. However, some butteroil users are cutting imports and supplies will be up from Oceania and (to a lesser extent) the U.S. and the European Union (EU). Butter prices are projected to stabilize later in the year, once the current downward adjustment is completed.

Dry milk prices probably will drift lower in coming months. Mexico and Algeria have not been importing as much as in the past, Oceanic supplies are larger, and buyers are holding back as much as possible to see how low prices might go. However, price declines will be limited by the virtual absence of intervention stocks and lower exports from the U.S.

In the longer run, butter prices are projected to be fairly stable. However, nonfat dry milk prices are expected to move slowly higher as demand grows from East Asia. The U.S. is expected to be a commercial butter exporter, but a small price gap is projected to persist (under current policy) for skim solids.

Cheese markets probably will be unsettled because of the GATT. European supplies will be restricted, making international markets quite sensitive to New Zealand's and Australia's ability to produce larger and more diverse amounts of cheese. During the next 5 years, the U.S. is not expected to export much cheese. However, individual companies may find significant opportunities for cheese and other products in nearby markets, markets where Americans have marketing advantages, or markets for dairy-based products with substantial further processing.

The 1996 Outlook

U.S. milk production in 1996 is projected to rise slightly, as longer-run structural forces overcome higher feed prices. Concentrate prices will be up sharply and prices of good quality alfalfa hay remain high, particularly in the West. However, higher milk prices are expected to offset a significant share of the rise in feed costs. Cost pressures are not projected to cause much delay in western expansion or in development of "new style" operations in northern areas. Meanwhile, cull cow prices will stay low, and the replacement heifer herd is large. Milk cow numbers are expected to decline about 1 percent in 1996, slightly more than in 1995.

The lowest milk-feed price ratios since the mid-seventies will trim expansion in 1996 milk per cow. Farmers will be conservative about increases in concentrate feeding, and growth in the number of cows receiving bovine somatotropin (bST) may slow. Milk per cow is projected to increase less than 2 percent in 1996, about the same as 1995's weather-limited rise.

The 1-percent rise in milk production is expected to be easily absorbed by expansion in commercial use. Sales of milkfat and skim solids are expected to increase 1 to 2 percent in 1996. Butter exports are expected to absorb the available butter, and domestic cheese sales are expected to grow. Fluid milk sales and nondairy use of nonfat dry milk are projected to be steady.

The 1996 surplus of skim solids will be small, while the milkfat surplus could be very small. Removals of skim solids are projected to be equivalent to 2 to 4 billion pounds of milk and will be mostly exports under the Dairy Export Incentive Program (DEIP). The milkfat surplus could be less than 1 billion pounds milk equivalent.

Tight markets are expected to generate higher milk prices, particularly during the first half. The 1996 average milk price is projected to rise 3-6 percent from 1995's \$12.78 per cwt, to possibly the highest since 1990. Prices will be particularly sensitive to domestic demand for skim solids, variations in milk production, and international butter prices.

The Intermediate Outlook

Milk production in the intermediate run is projected to rise about 1.5 percent annually. Milk cow numbers are expected to decline less than 1 percent per year. Resources probably will slowly continue to leave dairying, particularly in areas of the most marginal soil quality. However, these exits are projected to be largely offset by continued -- but slower -- expansion in western milk production, emerging growth in parts of the Plains, and further development of "new style" farms in core northern production areas. These new style farms are much larger, require less investment per cow, use a much higher share of purchased inputs, and employ industrial-style division of labor.

Milk per cow is projected to grow about 2 percent per year. Milk-feed price ratios will run considerably lower than during the past 10 years. The incentive to boost milk per cow with heavy grain feeding will be less. However, use of bST is believed likely to increase gradually. More farmers probably will inject a larger share of their herds as expertise in profitable use grows.

Domestic demand is projected to grow slowly. Cheese sales are expected to rise and dairy ingredients will be inexpensive ways of boosting quality in many processed foods. In general, relative retail prices will favor expanded commercial use of dairy products.

Expansion in domestic dairy demand is not anticipated to keep pace with growth in milk supply, resulting in the slow erosion of inflation-adjusted prices. However, some increase in nominal prices is expected as future supply shifts are not projected to be as large as those of the eighties.

Key Uncertainties

Even small differences in annual rates of change can substantially alter the picture after a few years have passed. A number of uncertainties can be identified as having the potential to substantially affect domestic market conditions and our competitive position in international markets.

Cheese uses more than 40 percent of the milk supply and growth in cheese sales has been a major force expanding overall commercial use. At some point, Americans will no longer wish to eat more cheese. When that occurs, growth in dairy demand will slow considerably.

The recent breakup of some longstanding product trends also raises demand uncertainties. Sales trends for individual types of fluid milk have shifted in recent years, dramatically so in some cases. The net result seems to be stagnant total sales instead of fractional increases. The difference between small increases and small decreases would be substantial in 5 years. Use of nonfat dry milk in processed foods in recent years seems to have reversed a long downtrend. This reversal is quite plausible in light of recent conditions, but the future direction of such sales is quite uncertain.

Availability of high quality alfalfa hay will be a more important constraint on expansion of western milk production. During the last 2 years, dairy demand has bid up the price of high quality alfalfa throughout the West, despite heavy hay production. Further expansion in the dairy herd will require more alfalfa output, boosting the proportion of high quality hay, or learning to use poorer forage -- not just finding remaining pockets of underutilized alfalfa. Milk production will continue to grow, but alfalfa supplies will significantly affect the rate.

Structural adjustment in the Midwest and Northeast will be affected by the development of new style dairy farms and the success of low-input dairying. The projections imply that industrial type dairy farms will slowly increase in importance, as the technology and management is adapted to northern conditions. Similarly, the projections do not imply that shifting to intensive pasture management to provide a significant share of feed will greatly slow the exit of resources from dairying. This style operation may extend farm viability of current producers but will not attract a new generation.

Learning to use bST is proving difficult. A sizable group has found themselves at the edge of profitable response. If these producers unlock the secret of profitability, bST use could jump. On the other hand, producers could well decide the returns from bST are not worth the additional management needed to use it.

Lastly, recent policy proposals have included dramatic changes in the way things are done in the dairy industry. Large disruptions would be possible during the adjustment period. Also, some features could substantially alter price alignments among domestic markets and between domestic and international markets.

A FARMER'S PERSPECTIVE OF THE ECONOMICS OF SUGARBEET
PRODUCTION IN THE RED RIVER VALLEY

Craig Hertsgaard
Red River Valley Sugarbeet Growers

Some traditions are worth changing, some are not. The traditional family farm of Eastern North Dakota and Western Minnesota has undergone some profound changes in the last twenty-five years, even though from the outside, it may look the same. I am a fourth generation family farmer. I farm together with my brother, just like my father and his brother did, and my grandfather and his brother. I drive tractors, work in the shop, and if my clothes are clean enough, sit down in my office and use modern tools like computers and satellite fed information screens to manage my business.

Red River Valley farmers broke many family farm traditions about twenty-five years ago and started the modern business of farming. I remember when I was in college, and that was a lot less than twenty-five years ago, the city kids used to call certain things rural. Things like obscure jokes, classes that were under 400 students, and the like. The Ma and Pa Kettle and American Gothic idea of a husband and wife and a pitchfork had been pretty much fixed as typical farm life.

Economically speaking, most pre-1970 farms fit a traditional mold. The major goals were to increase yields and reduce cost. That meant more bushels, more tons, and more mechanization. The price we received for our crops was out of our control. Government became permanently entwined in farm pricing following the Great Depression years of the 1930's and institutionalized in the 1949 Food Security Act. Farmers focused all their attention on reducing cost per unit.

A significant price spike in the wheat market in the early 1970's made farmers re-evaluate how they were making money. They could buy new cars, get color TV's and send their kids to college just like their cousins who had moved to the city. Up until that time most farmland was owned by the operator or by close relatives. A small portion of a farm was leased. Farms grew rapidly in size because kids valued what money could buy more than the family farm. Instead of staying home and accepting a lower standard of living, they went to college and moved into other professions. Farmland that did not have another generation to operate it was rented out. Those farms that remained, absorbed the available land and farm size grew. A farm that leased one third of the acres they operated in 1970, probably leases two thirds today, usually for a term of three to five years. Some for as short as a year at a time. Farmers no longer had to fit crops into land they already had. Expansion and contraction could occur without disrupting the core farm unit. That is a significant change when it comes to operating a business.

Another thing that happened during that period was that Red River Valley farmers took some of the money they made from high wheat

prices and bought a deteriorating American Crystal Sugar Company. Two other groups of farmers followed, and two other sugarbeet processing cooperatives were formed, bringing the total to three. Sugarbeets were a natural fit in our climate, but the high investment needed to raise the crop convinced farmers that they must have more control. Control not only over what they were paid for their sugarbeets, but whether anyone would be there to buy them.

I've spent a couple of minutes explaining what happened twenty-five years ago, because three significant changes occurred that affect how I and my neighbors will approach sugar production in the future. First, we realized that reducing cost per unit can only go so far to make a farm business profitable. Secondly, farmers can adapt to changing market signals much more quickly because they can change the size and scope of their operation though leased land. And finally, as in the case of the sugarbeet cooperatives, they can have some control over processing and marketing their product. I think these changes have allowed us to operate as true businesses rather than being stuck in an American Gothic print.

Sugarbeets require a much higher investment than competing crops but also have higher returns per acre. Since sugarbeets require two or three years of different crops between each rotation, they fit well with other traditional commodities. In order to deliver sugarbeets to a processing facility, you must be a shareholder in the cooperative. Farmers essentially buy pieces of the processing facilities when they buy a share. You cannot deliver any sugarbeets to the cooperative unless you own one share for every acre you harvest. Shares are freely bought and sold and have developed into a relatively liquid market. The only restriction is that you must be an actual farmer and the transfer must be approved by the farmer-director cooperative board.

The economic health of the individual farm is the ultimate concern in the sugar cooperative structure. Actions of the cooperatives must benefit its members. I distinguish that from shareholders of a corporation who derive their income from profits of the company. Corporate shareholders by and large have completely separate interests from those of the company in which they have invested. The livelihood of cooperative shareholders depends on their investment. Conversely, the efficiency of the cooperative depends on its shareholders. All the cash benefits of the cooperative are contained in the per ton payment for the sugarbeets. That keeps farmers delivering a product to the factory that is of the highest quality and that can maintain the lowest possible processing cost.

Many of the improvements in productivity we have made as sugar producers and processors is the result of our ability to meet each others' needs. A good example is sugar content as a percentage of total weight, and recoverable sugar per acre. A significant portion of processing costs for sugarbeets are associated with tonnage. More raw tons to process for every ton of sugar produced generally means higher costs. And since people are more interested in buying sugar than pulp, more sugar per ton means more revenue. While weather is often the major determinant of quality, production practices can also play a major role. Very simply, payments are based on how many pounds of sugar per ton can

be extracted, and processing charges are applied on a per ton basis. As with most incentives based on cash, the effect was significant. (Fig. 1)

Percent sugar increased steadily after these incentives were introduced. As a farmer, this also increases annual risk. When weather steps in and overwhelms our best efforts, payments per ton can drop significantly. However, the long term effect is to increase the efficiency of the factories and the farm, and make us more competitive. This trend is evidence farmers can adapt as a result of changing market forces like any other business.

A significant issue for many of you is what kind of growth in sugar production can be expected from Red River Valley farmers. I think changing market signals in crop choices will be the major factor when we decide whether or not to grow sugarbeets. What I'll do is examine the comparative cost structure for not only sugarbeets but also other crops grown in the region. I will take cost of production and combine it with local yields and possible price trends. We can then calculate a Return on Outlays for each crop under different scenarios. My Return on Outlays is Net Profit/Acre divided by total economic cost per acre. The reason I have introduced this method of analysis is to take into consideration the amount of capital a farmer and his banker place at risk each growing season to achieve a projected profit or loss.

I know there are more complicated ways to calculate profit from a business venture. I've chosen a simple one for one thing, because I'm not an economist. This also happens to be the method we use on our farm to plan crops for the upcoming year. Secondly, when I've visited with others who compare returns from other commodities, they seem to be under the impression that sugarbeets offer significantly higher returns. On a per acre basis that is true, however, if you consider expense on a per acre basis as well, you may reach a different conclusion. Let's start with the cost breakdown for the crops involved (Fig. 2).

The likely crop choices are wheat, soybeans, corn, sugarbeets, and edible beans. I am using cost of production data for Eastern North Dakota as compiled by the North Dakota State University Agricultural Economics Department. Since NDSU does not compile costs for sugarbeets, I will use the most recent estimates for Minnesota and Eastern North Dakota from USDA. Methods of calculation are very similar to what USDA uses, but since production costs vary significantly by region, I believe local estimates to be most accurate. Prices for wheat, corn and soybeans in my first chart are those estimated by USDA for 1996. Forecasts for edible beans and sugarbeets are not made by USDA so I have made my own guesses from recent history. I would be happy to defend them.

Yield estimate is what we would use locally on our farm for this type of planning. Wheat and edible bean yields would be higher in the northern end of the Red River Valley, while corn and soybeans would be much lower. In the southern valley, corn and soybean yields would be higher and so the Net column would be affected. This is just an average. The sugarbeet estimate should be relatively uniform valley-wide.

Two other points, none of the revenue data includes government

payments. Under the current program, market prices exceed targets so no deficiency payments on wheat or corn are made. In later charts I have also omitted them because no one knows what they will be. Also, cost data does not include compensation for the farm operator. Farmers traditionally do not figure their own time when they decide to plant extra acres.

I would like to go back to the beginning of my presentation when I dealt with portion of farms that are rented vs. owned. Since the major portion of farms are now rented, land can be added or subtracted much more easily. If I get a better return on total expense growing edible beans rather than sugarbeets, even though the profit per acre is less, why would I want to add additional acres of sugarbeets instead of edible beans. (Fig. 2a) This illustrates comparative Return on Outlays using the data. The bars represent Return on Outlays. The superimposed lines represent Profit per Acre. Government deficiency payments would be made under the current program and these prices. They would make wheat have a positive return per acre and Return on Outlays.

1995 and 1996 are unusually high price years for wheat and feedgrains. Let's take a look at these charts for current prices. (Fig. 3 & 3a) I will not show the matrices for current and minimum prices. However, you can find them in the appendix of the handout. Since edible beans have not yet been affected by 1995's shortage of wheat and feedgrains, I did not change that number. Note the changes in profitability for wheat and corn. As you can see, current prices change the playing field considerably. If only they could last. This presentation would not be complete unless we took a look at what Return on Outlays would be when prices are at the lower end of the spectrum. Again, government deficiency payments for wheat and corn are not included (Fig. 4 & 4a).

I've personally received all of these price levels within the last five years. Thirty-six dollars a ton was about what I received for my sugarbeets in 1995. The reduction was due to quality problems I mentioned earlier. Over the long term, an adjustment to capital investment or cost of production would have to be made under these prices.

If you use a Return on Outlays approach to what farmers will choose to plant, it does not appear there is any real incentive to significantly increase sugarbeet plantings in the Red River Valley. The burning question is "If this method is valid, how do you explain the significant expansion in sugarbeet acreage that has taken place over the last fifteen years?" I think there are a number factors.

First of all, there were several new factories built in the 1970's when good wheat crops and high prices were available to finance them. Construction costs weren't nearly as high as they are now, and farmers were able to buy shares for a relatively low price. Also, factories purchased in the 1970's were run down and inefficient and simply updating those facilities accounted for a good deal of acreage increase with a lower level of investment per acre for processing. Quality incentives encouraged farmers to produce sugarbeets that were worth more money. Price per ton was able to stay ahead of increasing costs even though the price of sugar remained relatively stable.

Secondly, the mid-eighties brought lower alternative crop yields and depressed prices, especially for wheat. Farmers wanted to plant less, not more grain. From a production standpoint, the growing area needed to diversify and include additional crops in rotation with wheat.

Finally, the generation that initiated the farmer-owned cooperatives is moving into retirement. Half the farmers in American Crystal are younger than their early forties. That means when we invest in the processing facility it is at a much higher cost per acre than when it was originally purchased and expanded.

The last variable is what will happen with farm policy. The sugar section of Freedom to Farm deals a major blow to the traditional price support structure. Controls on marketings will be eliminated, the price floor during periods of normal production and consumption will be lowered, and price supports will be removed completely during periods of high production. Sugar producers have lost much of their ability to predict the price for their crop.

It will be difficult for me to make large investments in sugarbeet acreage when competing crops have a more favorable Return on Outlays. That's not to say sugarbeet acreage in the Red River Valley will shrink. We should have the ability to make incremental improvements in yield, and hopefully, reduce cost per acre.

Mother Nature generally gives us enough rain, but not always when we want it. It is not unusual to lose twenty-five percent of sugar production potential in the first three weeks after planting if the weather becomes hot and dry. Precision planters and developments in seed coatings now entering the industry should increase sugar growth potential.

Controlling weeds is one of the most expensive aspects of sugarbeet production. I am hopeful that biotechnology may offer help in the future. Experimental sugarbeet varieties are being tested that have been genetically engineered to tolerate compounds currently being used on other crops. If successful, these varieties would reduce both the amount and cost of pesticides used. Their commercial use is still five to ten years away. The net effect of improving production techniques will be to make dryland sugarbeet yields become consistent and more predictable from year to year.

The way I look at increasing income on my farm is very different than it was for my father and uncle 25 years ago. If they wanted to expand, they would most often add value to the acres they already owned. Sugarbeets returned more dollars per acre and were easier to get than more land. Today, rental land is more readily available as well as more efficient machines to cover additional acres. I think a large percentage of decisions are going to be based on the idea of Return on Outlays rather than simply net income per acre. They will also be determined by our ability to be consistent in revenue per acre. I think those "new" traditions are already in place.

Fig. 2

Comparative Profitability - Average Prices

Crop	*Cost of Production	Yield	Average Price	**Net Profit Per Acre	Return on Outlays
Wheat	152	42	\$ 3.50	(\$ 5)	-3%
Soybeans	139	30	5.75	34	24%
Corn	215	100	2.50	35	16%
Sugarbeets	658	18	42.00	98	15%
Edible Beans	184	14	16.00	40	22%

Fig. 3

Comparative Profitability - 1996 Prices

Crop	*Cost of Production	Yield	Average Price	**Net Profit Per Acre	Return on Outlays
Wheat	152	42	\$ 4.90	\$ 54	35%
Soybeans	139	30	6.75	64	46%
Corn	215	100	3.20	105	49%
Sugarbeets	658	18	42.00	98	15%
Edible Beans	184	14	16.00	40	22%

Fig. 4

Comparative Profitability - Minimum Prices

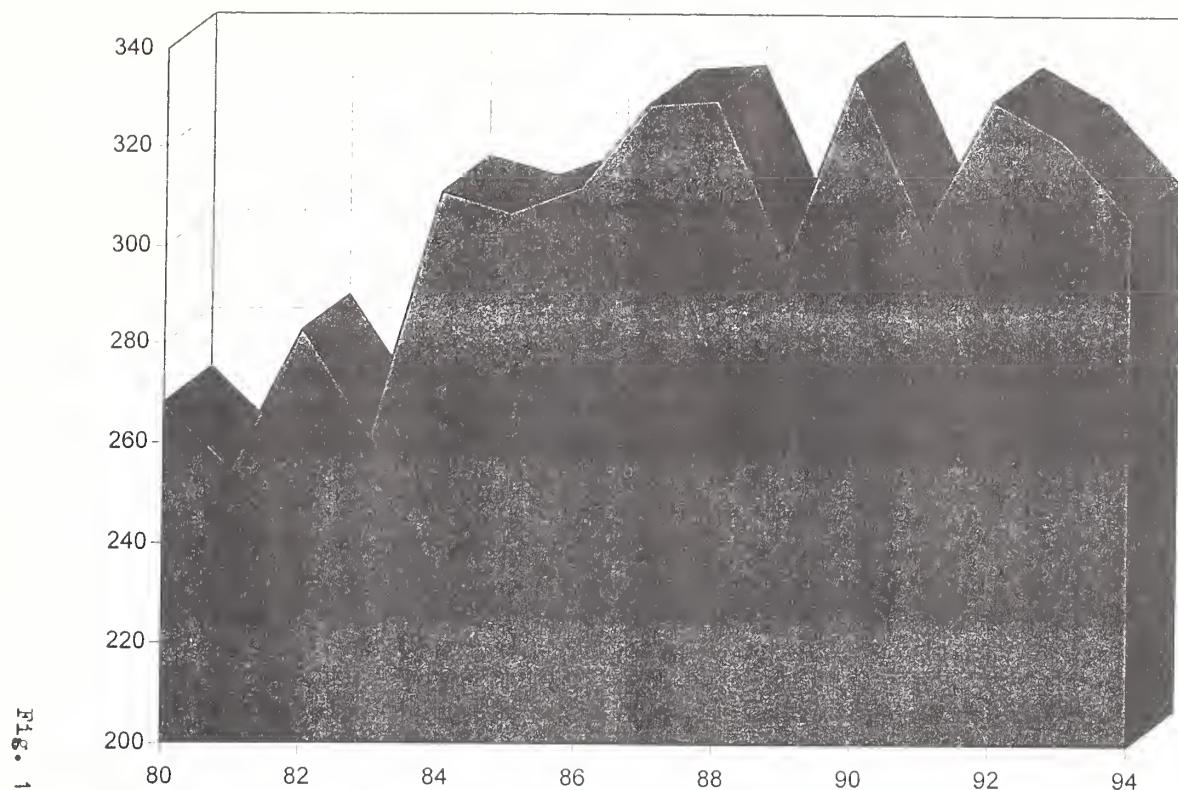
Crop	*Cost of Production	Yield	Minimum Price	**Net Profit Per Acre	Return on Outlays
Wheat	152	42	\$ 2.75	(\$ 37)	-24%
Soybeans	139	30	5.25	18	13%
Corn	215	100	2.10	(5)	- 2%
Sugarbeets	658	18	36.00	(10)	- 2%
Edible Beans	184	14	14.00	12	7%

Yield and price data for wheat, soybeans & corn stated in bushels; sugarbeet in tons; edible beans in cwt.

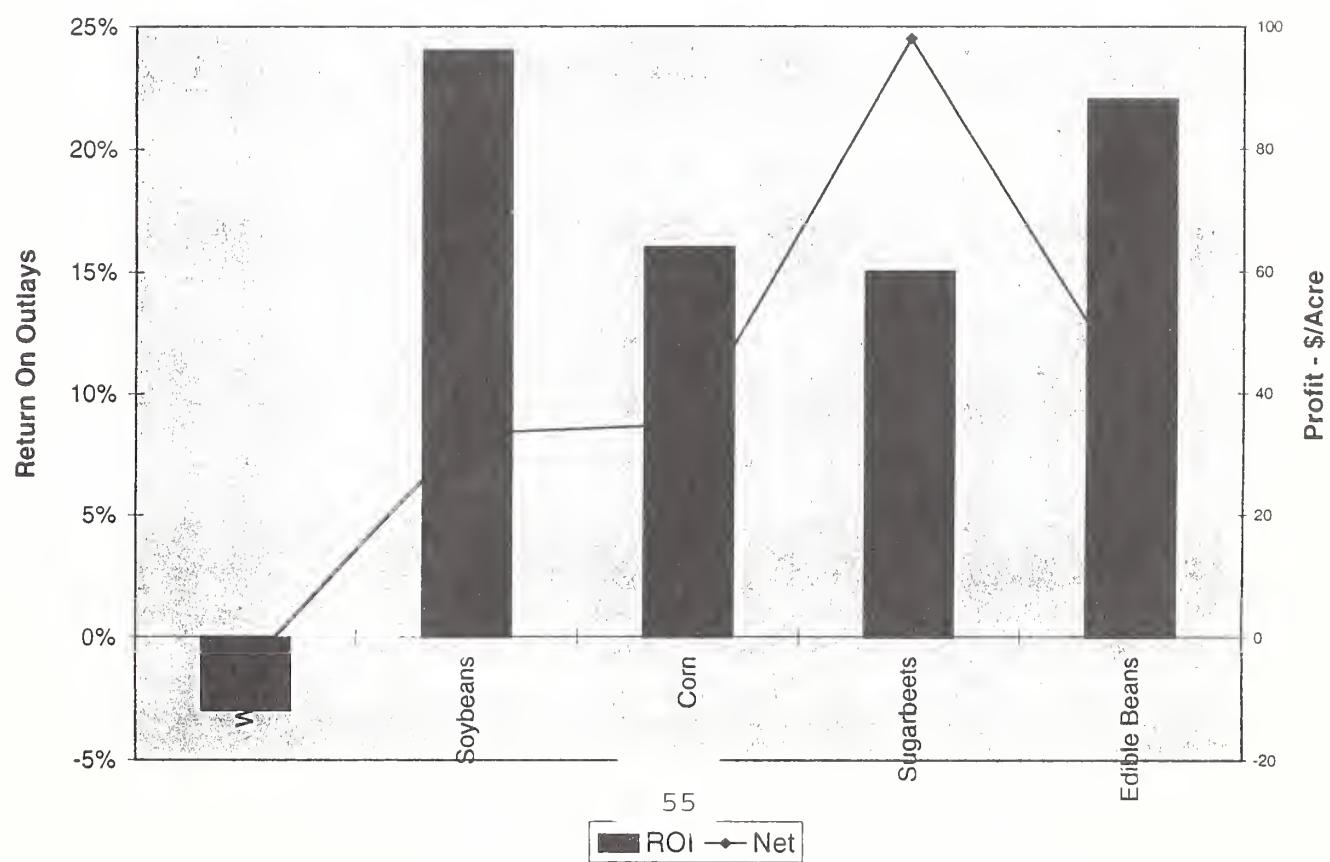
*Cost for wheat, soybeans, corn and edible beans, calculated by North Dakota State University Agricultural Economics Department-1996. Cost for sugarbeets calculated by USDA - 1992 crop year. Neither Cost of Production estimate includes operator contribution to labor.

**Farm Operator Compensation not included in this calculation.

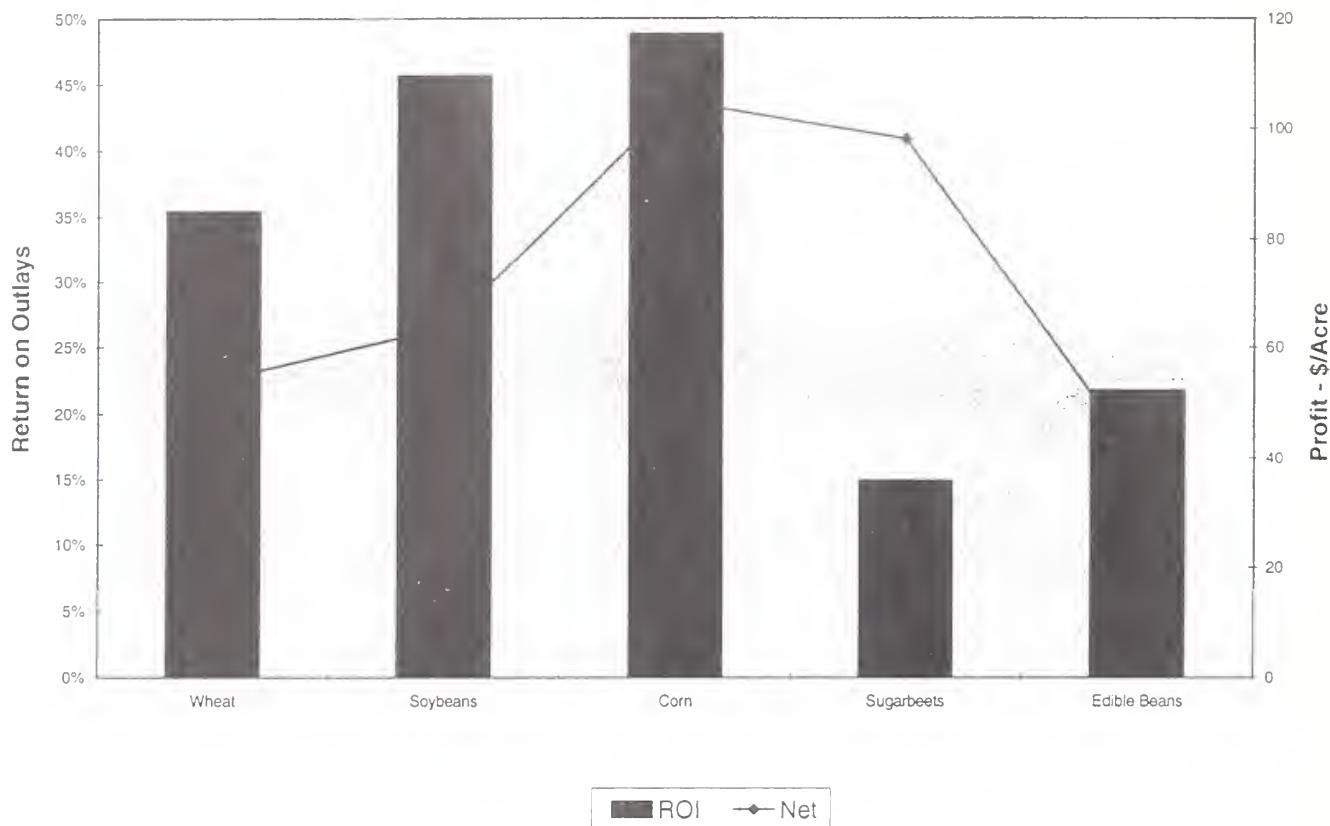
Pounds Recoverable Sugar/Ton



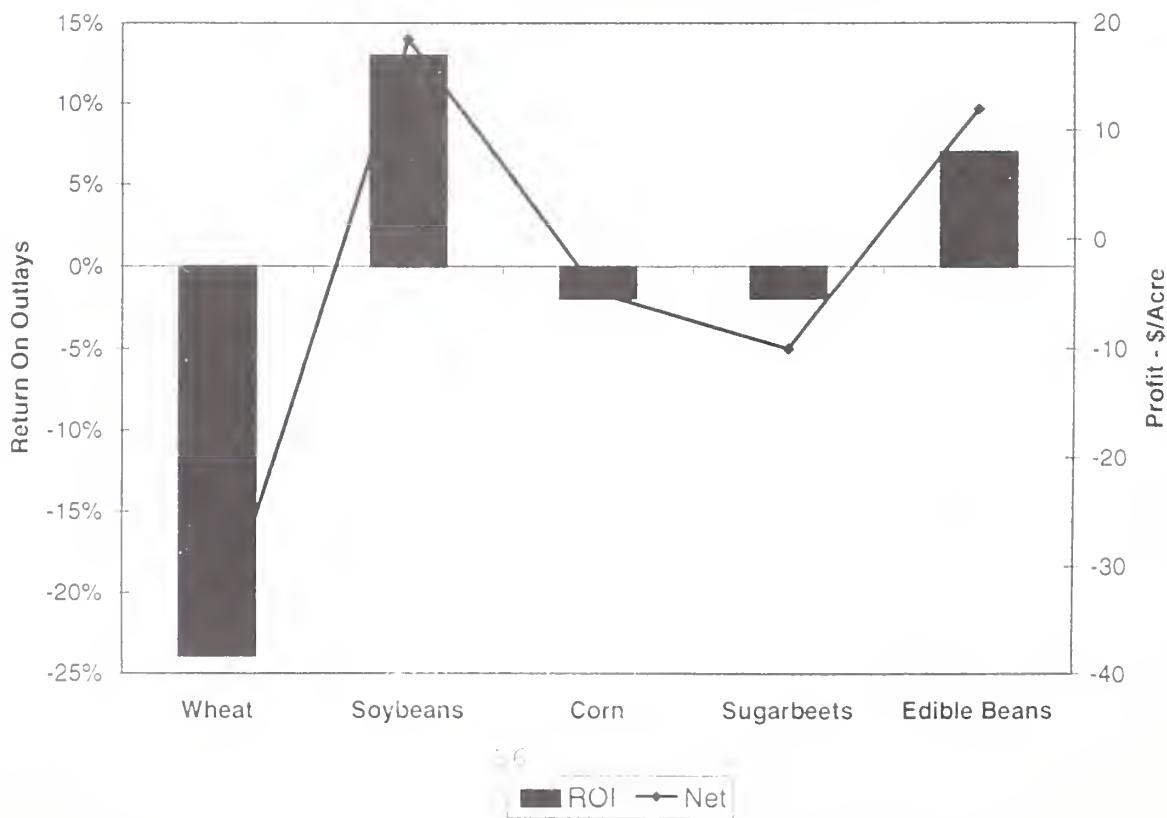
Comparative Profitability - Average Prices



Comparative Profitability - 1996 Prices



Comparative Profitability - Minimum Prices



USDA PERSPECTIVE ON THE OUTLOOK FOR COTTON

Patrick Packnett, Stephen MacDonald, and Leslie Meyer
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1995/96 Situation**U.S. Production**

U.S. cotton production is estimated at 18 million bales, 8.5 percent below last season's record 19.7 million. Upland production is estimated at 17.6 million bales and extra-long staple (ELS) is projected at 361,000. Last August, the total crop was forecast at 21.8 million bales, as planted area had climbed to its highest since 1956. Since then, however, weather and insect problems significantly reduced yields and the crop size across the Cotton Belt. The national average yield is forecast at 540 pounds per harvested acre, 168 pounds beneath the record set in 1994. Despite the production problems, the 1995 acreage abandonment rate is estimated near 5.5 percent, below the previous 10-year average.

Production in the Southeast is estimated at 3.9 million bales, down 15 percent from the August estimate, but 6 percent above last year. Despite a yield of only 545 pounds per harvested acre this season, a 60-percent increase in area pushed output in the Southeast to its largest since 1937. Georgia's production, at nearly 2 million bales, is up 400,000 bales from last season and a new State record. Similarly, North Carolina's crop is forecast at 830,000 bales, the largest since 1928.

On the other hand, the Delta States are expected to produce 5.9 million bales, 1.5 million below the August estimate and a million bales under last season's record crop. Yields in the Delta declined on average over 200 pounds this season and are estimated at only 604 pounds per harvested acre. Mississippi is expected to produce 1.8 million bales, 13 percent below the 1994 crop. Cotton production in Arkansas and Louisiana is also down from a year ago, at 1.5 million and 1.4 million bales, respectively.

Similarly, estimates show upland yields and production lower this season in the Southwestern and Western States. For the Southwest, production is estimated at 4.6 million bales, with yields averaging only 366 pounds per harvested acre. In the West, the crop is expected to total 3.2 million bales based on a yield of 960 pounds.

In contrast to upland, estimates for ELS cotton are higher this season. An increase in area of

more than 25 percent offsets a yield decline of over 150 pounds per acre. Yields are expected to average 821 pounds per harvested acre, the lowest in 4 years, while 1995 ELS production is similar to the 1993 crop. The final USDA 1995 upland and ELS cotton production data will be released May 9.

Foreign Production

The 1995/96 marketing year brought with it a continuation of the rebound in foreign cotton production and supplies begun last season. The 1993/94 marketing year marked a ten-year low in available world cotton supplies, while world consumption was 24 percent higher than it had been just 10 years before. This resulted in above normal prices which continued through 1994/95, stimulating a 10-percent increase in harvested area in 1995/96. Despite persisting low yields, foreign production grew 7 percent to 70.6 million bales.

Pakistan accounted for 38 percent of the increase in foreign production in 1995/96. Record area dedicated to cotton, favorable growing conditions and a low incidence of pest and disease problems contributed to estimated production of 8.5 million bales, Pakistan's second largest crop on record. The massive GAP irrigation project enabled Turkey to expand area and boost production nearly a million bales to a record 3.9 million bales. Mexico and Argentina accounted for most of the 650,000 bale increase in Latin American cotton production. In Mexico favorable weather conditions and ample government support under PROCAMPO and other direct subsidies combined with reduced incentives for corn production boosted cotton output. Reduced plantings of other winter and spring commodities in Argentina resulted in a dramatic increase in area planted to cotton. Production in African Franc-Zone countries grew 455,000 bales in 1995/96 due to a 10-percent increase in area prompted by high international prices. Franc Zone producers are reaping substantially higher local prices following the devaluation of the CFA franc. Some areas were also able to increase input use as general inflation and input cost growth has remained less than the currency change. China's expected crop of 20.0 million bales is slightly above its 1994/95 outturn of 19.9 million. While China's area, estimated at 5.5 million hectares, is nearly unchanged from last year, area has shifted out of the North China Plain, the region most plagued by the bollworm. This shift, along with favorable weather across most cotton growing regions, helped farmers attain average yields.

Australia's 1995/96 production is estimated at 1.6 million bales, up 100,000 bales from last year's drought-reduced crop. Area is estimated to increase 22 percent from last season with virtually all the increase coming from non-irrigated areas due to shortages of irrigation water. The relatively small increase in production, compared to the increase in plantings, reflects the sharp decline in average yields resulting from the increased proportion of rain-fed cotton.

The late onset of the 1995 monsoon and poor growing conditions in parts of the country caused Indian cotton yields to decline 10 percent from 1994/95. Despite record area of 8.4 million hectares prompted by high prices, production declined to 10.7 million bales from over

10.8 million a year earlier. Cotton output in Brazil is down over 200,000 bales due to lower area attributed to growers' indebtedness and the high cost of agricultural inputs. Production in the FSU is estimated down 220,000 bales from 1994/95 due to the diversion of cotton area to grain and vegetable production and the lack of inputs owing to economic difficulties.

U.S. Consumption and Trade

Domestic mill consumption of cotton in 1995/96 is projected to decline for the first time since 1990/91, as a drop in consumer demand and relatively high cotton prices have slowed textile mill activity. Mill use is forecast at 10.5 million bales this season, 6 percent below 1994/95's near record. Data for the first 5 months of 1995/96 (August-December) indicate U.S. mills have consumed 4.3 million bales, compared with 4.7 million a year ago. On a seasonally adjusted annual rate basis, cotton consumption during August through December averaged 10.4 million bales.

While mill demand for cotton has declined 8 percent through the first 5 months of 1995/96, manmade fiber use has fallen nearly 14 percent. Higher manmade fiber prices this season have contributed to the reduction in mill use. However, despite the dip in textile mill activity this season, competitively priced cotton has allowed its fiber share to rise. This can be illustrated by cotton's share of fiber use on the cotton system, which has increased each year since 1983. For the first 5 months of 1995/96, cotton's share has averaged 78 percent, the highest since 1966.

Although cotton mill use has weakened somewhat this season, consumption is expected to rebound as demand for U.S. cotton textile products remains robust both here and abroad. Cotton textile exports surpassed the one billion pound mark, a new record, during calendar year 1994. In 1995, cotton textile exports exceeded the 1994 level by nearly 20 percent, reaching 1.3 billion pounds. On the other hand, cotton textile imports have also continued to expand, exceeding 4 billion pounds in 1995, a new high. Nevertheless, cotton textile exports continue to moderate increases in the textile trade deficit.

U.S. raw cotton exports are projected to fall this season from 1994/95's extraordinary level in which the United States was well positioned to take advantage of an elevated demand for cotton. Increased competition for a smaller market abounds in 1995/96 as major producers outside the United States have adequate supplies to move into the export market. However, U.S. export sales and shipments have been solid this season, with commitments rising to 7.8 million bales by early February. Currently, U.S. exports are forecast at 7.2 million bales in 1995/96, resulting in a U.S. share of world trade at approximately 26 percent. Although below the 33 percent posted last season, the U.S. share remains above the 5-year average.

With U.S. cotton supply 2.5 million bales lower this season and demand forecast to shrink 2.9 million, stocks are expected to remain relatively low. Based on these estimates, ending stocks

are projected to rise only 350,000 bales to 3 million. This implies a continued tight stocks-to-use ratio of only 17 percent and the apparent need for larger production in the United States in 1996/97.

Foreign Consumption and Trade

While not increasing as fast as production, foreign consumption is expected to increase 2 million bales in 1995/96, the first increase registered since 1989/90. A number of countries are expected to experience stronger consumption in 1995/96, the larger of which are: China, 600,000 bales; Turkey 310,000 bales; India 216,000 bales; and Russia 200,000 bales. The lag in Chinese consumption experienced over the last two years appears to have subsided as current yarn production and cotton use data indicate strong growth over last year. Turkey has shown the strongest, consistent growth in consumption of any country with consumption growing an average of 12 percent annually over the last four years. Significant investment has increased the efficiency and capacity of the Turkish textile industry. This combined with an abundant supply of cheap inputs, particularly labor and cotton, has helped to improve the industry's competitiveness.

Foreign cotton imports in 1995/96 are off nearly 2.3 million bales from last season because of reduced import needs by major foreign producing countries. Last season, crop problems in several major foreign producing countries, notably China, India and Pakistan, necessitated large imports, in some cases record high, which helped explain near-record U.S. exports. While imports are down in 1995/96, the easing of the tight supply situation in Pakistan and India and the subsequent lifting of trade restrictions will enable these countries to increase exports this season. Slightly better production in Franc-Zone Africa and Australia will facilitate somewhat higher exports. These gains in exports by foreign producers will come at the expense of the United States and the Former Soviet Union, whose exports will likely decline 23 percent and 18 percent, respectively this season.

Outlook for 1996/97

U.S. Production

The U.S. outlook for 1996/97 points to lower planted acreage but higher production. Despite a second year of strong cotton prices, price levels for competing crops and last season's expensive cotton crop will likely result in cotton area below that of 1995/96. Total cotton acreage in 1996 will likely range between 15 and 16 million acres, compared with nearly 17 million this season. While upland acreage is expected to decline, ELS area is projected to jump significantly as tight supplies have pushed ELS prices to double those of upland cotton. Meanwhile, the first official estimate for planting intentions is the Prospective Plantings report which will be released on March 29.

Although area could shrink by nearly 2 million acres next season, a return to more normal yields would push the 1996 crop above this season's 18 million bales. If the abandonment rate is near the 10-year average of approximately 7 percent, harvested area, based on the indicated planted acreage, would range between 14 and 15 million acres in 1996/97. While abandonment is expected to exceed this season's 5.6 percent, yields are projected to rise from the 12-year low of 540 pounds per harvested acre posted in 1995. Preliminary yield projections for 1996/97 range between 650 and 670 pounds per harvested acre, with the midpoint of this range near the 30-year trend yield.

In 1996, the U.S. cotton industry could witness a second record crop in 3 years. Based on the acreage and yield assumptions presented here, cotton production would likely range between 19 and 21 million bales in 1996/97. Coupled with the current beginning stock estimate of 3 million bales, total cotton supplies next season should range in the 22 to 24 million bale area.

Foreign Production

World cotton supplies, cotton price trends, and the price of cotton relative to other commodities will impact cotton area in 1996/97. Although cotton prices are relatively high, prices of other crops including wheat, corn and soybeans are now at record or near-record levels. Larger cotton production and an improved stocks-to-use ratio during the 1995/96 marketing year caused the world cotton price to slip below the 1994/95 level. The Cotlook A Index has averaged 88.35 cents per pound thus far in 1995/96, and the International Cotton Advisory Committee forecasts a season average of 86 cents. This compares to the 1994/95 average of 91.85 cents per pound. Declining cotton prices, coupled with strong competing crop prices will not provide incentive to increase area in most foreign producing countries. In fact these and other factors will cause area planted to cotton to decrease in some major producing countries including Paraguay, India and Turkey. Nevertheless, the relatively high level of international cotton prices will offer enough incentive to maintain or increase area in other countries keeping the decline in foreign area to a minimum. Our current forecast indicates foreign area could total 28-29 million hectares, compared with 28.9 million this season.

Prospects for foreign cotton area in a few individual countries are highlighted below:

- Pakistan seems likely to sustain its record 3.0 million hectare area in 1996/97 following a 13-percent increase this season. Due to strong demand by the domestic textile industry and a less restrictive trade policy, domestic seed cotton and lint prices remain relatively high despite estimates of the second largest crop in history this season.
- Mexico's cotton area is expected to increase significantly in 1996/97 due to producer response to high international cotton prices and the expectation of a continuation of

substantial government subsidies. This combination has already caused shifts in area from soybean to cotton in a few large cotton producing states.

- Prospects for 1996/97 cotton area in China are somewhat uncertain. Cotton production will continue to face the same constraints as in the last few years: the profitability of competing crops, a continuing widespread bollworm infestation, and the lack of a legal free market for cotton farmers. However, Xinjiang production has been growing steadily as area shifts westward from the North China Plain. China's cotton area is expected to remain at about 5.5 million hectares 1996/97.
- In the former Soviet Union, competing interests in maintaining or expanding cotton production to earn hard currency and expanding food production combined with concerns regarding land salinity from cotton production will keep area at about last year's level.

Based on current indications for foreign cotton area, any increase in foreign production would be attributable to increased yields. Assuming normal weather and growing conditions and continued control of insect and disease problems in China and Pakistan, foreign cotton yields in 1996/97 could increase slightly to around 530 to 550 kilograms per hectare to exceed the 1990-1994 average.

Given the prospects for area and yield, foreign production could total 70 to 72 million bales, with improved yields offsetting a slight decline in area.

U.S. Consumption and Trade

Cotton mill consumption in 1996/97 is projected to rebound from this season's retrenchment. As the U.S. economy expands and consumer confidence rises, purchases of apparel products and home furnishings will likely increase. Cotton textile exports are also expected to play a vital role in the growth of U.S. cotton mill consumption in 1996/97. Cotton textile exports rose for the eleventh consecutive year in 1995 to a new record, due in part to the positive effects of the North American Free Trade Agreement (NAFTA). Continued participation in agreements such as NAFTA should bode well for U.S. cotton textile products in the future. While textile imports are also expected to increase, more and more of these products are being produced with U.S. cotton. Overall, improved demand for U.S. cotton products here and abroad could push U.S. cotton mill use above the 1994/95 level. Current projections are for 1996/97 consumption to range between this season's 10.5 million bale estimate and 11.5 million bales.

U.S. cotton exports in 1996/97 are expected to remain near the projection for the current season. Although foreign production and consumption are projected to increase slightly next season, world cotton trade may experience a slight decline as many producing/consuming

countries become more self sufficient in 1996/97. This would limit foreign import needs and possibly provide available exportable supplies to compete with U.S. cotton. Early projections for U.S. cotton shipments during the 1996/97 season range between 6.5 and 7.5 million bales. With U.S. exports near the current season's level and world cotton trade also about unchanged, the U.S. share of the world market would remain close to 1995/96's 26 percent.

Total U.S. cotton demand next season is not expected to match the larger 1996 crop, and stocks may rise. Based on the scenario presented here, carryover stocks could increase to the 4.5 to 5.5 million bale level, resulting in a stocks-to-use ratio between 26 and 29 percent. However, if production problems exist across the Cotton Belt again in 1996/97 and use reaches the upper end of the range presented here, carryover stocks would remain near the beginning level. This latter scenario would imply a lower stocks-to-use ratio than in 1995/96 and reflect the need for a large U.S. cotton crop in 1997.

Foreign Consumption and Trade

Foreign consumption is expected to increase 1 to 4 percent to 76 to 78 million bales in 1996/97. Current economic forecasts indicate 2.5 percent annual Gross Domestic Product (GDP) growth in major industrialized countries in 1996 and 1997. This positive economic outlook will support larger use despite the resiliency of cotton prices. The forecast for foreign consumption in 1996/97 assumes continued recovery in Russian cotton consumption. Russian consumption fell to a low of 1.3 million bales in 1993/94, 76 percent below the 1990/91 level and has only begun recovering this season. Additionally, Turkey's recent entry into a customs union with the European Union will support continued growth in its consumption.

With a significant rebound in foreign cotton production this season and output about unchanged in 1996/97, a larger percentage of the cotton consumed in foreign countries will come from local production. Import demand in China will probably weaken, and cotton use in traditional high-income importing countries such as Japan is on a downward trend. Overall foreign cotton imports may be down nearly 2 percent to around 27 to 28 million bales. At the same time, foreign exporters who are expected to compete for a much greater share of world trade this season will do about as well in 1996/97.

The current scenario for world cotton production and consumption indicates that production will continue to outstrip consumption, although by a somewhat smaller margin than in 1995/96. This implies world cotton stocks will continue to grow in 1996/97 to reach a stocks to use ratio of 39 to 40 percent, about two percent higher than in 1995/96. The forecast increase in the U.S. stocks-to-use ratio from the current level of 17 percent to about 26 to 29 percent is certainly desirable considering the tight supply and use situation of the past two seasons. As far as the foreign situation is concerned, the forecast level of foreign stocks to consumption will likely be the highest since 1992/93 when the A-Index averaged about 58 cents per pound.

Long-Term Outlook

U.S. Projections

Over the next decade, the outlook for U.S. cotton continues to look positive. The cotton sector, as a whole, is expected to continue to gain as a result of the NAFTA and GATT agreements. While growth rates in domestic mill use and exports may be affected by the agreements, increased world trade is anticipated as barriers to trade are lowered or eliminated.

Growth in domestic mill use is projected to slow as import quota restrictions are eased over the next 10 years. Despite the potential for significant increases in textile imports, primarily apparel, larger U.S. textile exports of yarn, fabric, and semi-processed apparel items should continue to support domestic mill use. Cotton mill consumption is expected to rise 2.5 to 3 percent per year over the next 5 years, surpassing 12 million bales by 2000/01. Beyond 2000, growth in U.S. mill use is expected to slow further, but remain positive. By 2005/06, domestic mill consumption could approach 13.5 million bales.

Increased world economic activity should result in a growing demand for both cotton textile products and raw cotton. With world trade growing between 1997/98 and 2005/06, the United States is projected to maintain a large share of the world market, capturing a 25 to 26 percent share over the next decade. U.S. exports are expected to rise less than 2 percent over the next 5 years, averaging about 7.5 million bales. Beyond 2000, export demand for U.S. cotton is expected to more than offset the slowing mill consumption growth. During this period, exports are projected to grow more than 2.5 percent per year and average more than 8 million bales annually.

With larger total offtake as a result of the expanding world trade, U.S. cotton production will also need to rise to meet this demand. While cotton area is foreseen below the 1996 expectations, planted acreage between 1997/98 and 2005/06 is expected to range between 14 and 15 million acres annually. The national average yield is projected to continue rising near the 25-year trend of approximately 10 pounds per year, reaching 750 pounds by 2005. With harvested area between 13 and 14 million acres during this period, production is expected to range between 19 and 22 million bales annually. As stocks are rebuilt and adequate supplies are available to meet the rising demand, the U.S. cotton industry will have the opportunity to provide the global market with more cotton and cotton-containing products.

World Trade

World cotton trade is expected to average 1.8 percent annual growth during 1996-2005, largely reversing the declines suffered during the previous 10 years. World cotton trade fell from a peak of 33.4 million bales in 1986 to as low as 25.6 million in 1992, in large part due to declining Russian imports. Import growth is foreseen in Russia and elsewhere after 1995

and, by 2005, world exports are projected at about 33 million bales.

Both foreign consumption and production growth have slowed to negligible rates during the last 10 years, but are both expected to rebound to about their long-term average growth of 2.2 percent per year. The projection for world cotton consumption to expand at an annual rate of approximately 2.3 percent during 1996-2005 underpins the outlook for relatively strong rate of import growth. However, a key uncertainty in the projection is the extent to which the recent gains in cotton consumption associated with a shift in consumer fiber preference toward cotton, and away from synthetics, can be sustained over the projection period.

Foreign production has stagnated in recent years, as smaller harvests in China and the FSU have offset gains elsewhere. High levels of input use and poor water management have rendered useless much of the area abandoned in Central Asia during the 1990's, and pesticide resistance has hampered production in China. Further losses in these regions are not expected, and China's and Central Asia's production is expected to resume growth, although not as quickly as elsewhere.

The rapid consumption growth of the early 1980's, spurred by prolonged economic expansion and sharp share gains versus other fibers in some markets, is not expected to resume. In the short term, consumption growth in the traditional developed cotton importers is likely to be constrained by relatively sluggish economic performance, and in Eastern Europe and the FSU by economic restructuring. In the long term, the liberalization of textile trade under the Uruguay Round Agreement will also constrain cotton imports by the most developed traditional importers, such as the EU and Japan. In contrast, rapid consumption growth is expected in many developing countries and steady growth is expected to continue in major cotton producing countries. However, the pace of this structural shift will depend on the implementation of the phase out of the Multifiber Arrangement. While it is anticipated that the most significant changes will probably be delayed until the end of the implementation period, large uncertainties remain about the timing of liberalization and shifts in garment production both to and among developing countries.

Importer Developments

Global cotton trade to 2005 will depend largely on consumption patterns in importing countries. World trade contracted for two reasons beginning in the late 1980's--the virtual collapse of Russia as a consumer and importer of cotton, and the continued shift of spinning from traditional importers to cotton producing countries. Russia's cotton consumption fell almost 80 percent between 1989 and 1994, to 1.2 million bales, during the restructuring of Russia's political, economic, and foreign trade systems. Elsewhere, other traditional cotton importing countries found it less expensive to purchase cotton yarn and fabric for their textile industries as inexpensive textile imports flooded their markets, particularly from Pakistan.

These imports took the place of imported raw cotton.

With Russian and East European consumption projected to rebound, world trade is likely to grow during the next 10 years. Also, pest and disease control problems have severely constrained Pakistan's ability to maintain its earlier growth rates in cotton consumption and textile exports, thus strengthening prospects for raw cotton demand by some cotton-importing textile exporters who will face less competition. Finally, several countries that were sources of cotton exports during the 1980's are expected to be growing importers instead. In past years, increasing consumption in Mexico, Brazil, and China in part represented shifts in consumption from importing countries to non-importing producers. As consumption gains have steadily out paced production in all three countries, they have begun to drive world trade higher rather than lower as in the past.

- In the traditional cotton importers (Japan, South Korea, Taiwan, and the EU) consumption is expected to decline steadily after a short pause during the mid-1990's. Strong competition from emerging Asian textile suppliers and comparative production disadvantages again accelerate declines in their raw cotton consumption after 2000.
- China is expected to raise both production and consumption, but, in the long-run, consumption is expected to grow more rapidly. China's imports have risen in the last few years and China is expected to remain a growing net importer.
- After 4 years of significantly lower cotton consumption, some Eastern European countries and the FSU are beginning to increase consumption again. Gains in consumption and imports will begin slowly and from a much lower level than historically. In most countries, cotton consumption and imports are expected to remain well below historical levels.

Exporter Developments

Foreign export growth is expected to recover during the period, but still remain below the long term trend. By 2005, foreign exports are expected to total 24.5 million bales. Foreign export growth will be supported by some resumption of trade relations between cotton-producing and noncotton-producing countries of the FSU, and by growing import demand from China and Latin America.

- Australia, the French-speaking countries of West Africa, and Paraguay will continue to channel the vast majority of their output into the export market throughout the period.

- Pakistan is expected to maintain some regulation of raw cotton exports, favoring domestic producers of products for export over exports of raw cotton. However, restrictions on raw cotton exports are expected to be less severe than in the past, leading to some growth in raw cotton exports, as well as some strengthening of domestic producer and consumer prices during 1996-2005.
- India, with much potential for yield improvement, is expected to raise exports moderately. However, as with Pakistan, India's export growth will be limited by strong growth in domestic consumption, and in exports of yarns, cloth, and garments.



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